Paper

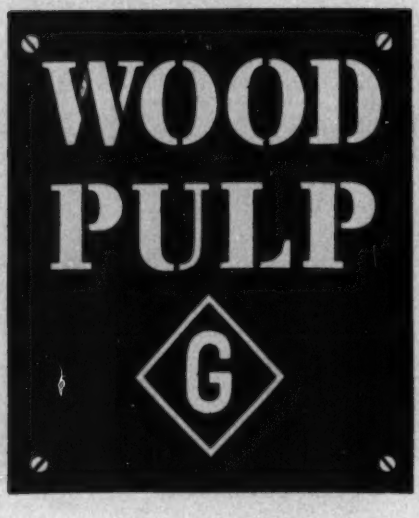
TRADE JOURNAL

PUBLISHED WEEKLY

MAY 18, 1951

WHAT PUMP CHARACTERISTICS ARE MOST IMPORTANT?
. . . SEE PAGE 24

WHAT ARE THE ADVANTAGES OF A YANKEE DRYER IN FINE PAPER MANUFACTURE?
. . . SEE PAGE 21



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Only with B. F. Goodrich grommet belts can you make these savings!

Save 3 ways! Investigate today! Write or mail coupon

You save belt costs because belts last longer, save production costs because machines keep running with fewer interruptions, save maintenance costs because they need less attention.

Patented grommets by B. F. Goodrich represent the only basic change since invention of the V belt. Belts last 20 to 50 per cent longer, depending on service. (The more severe the service, the greater the increase over ordinary belts.) Grommet belts have more rubber; they're more flexible, give better grip, less slip.

What is a grommet?

A grommet is like a giant cable except that it's *endless*—a cord loop built up by winding heavy cord on itself. There is no overlapping cord *section* as in all ordinary belts. Most belt failures occur in these sections where cords overlap!

All cords put to work

Each of the two grommets and every part of a grommet carry their share of the load. In ordinary belts under high tension the center cords "dish" because tension is greater near the driving faces. Dished cords are doing less work, not pulling their share. Grommet belts have no center cords, there is no dishing—therefore much more strength in proportion to cord volume—and less stretch. Grommet belts stretch, on an average, only about one-third as much as ordinary belts.

Better grip, less slip

Grommet belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give ⅓ more gripping power, pull heavier loads with a higher safety factor. Because there is less slip, there is also less surface wear.

Send for proof

Send the coupon for a set of reports telling users' experiences and showing actual installations where grommet belts outlasted all others. Some typical cases:

"... within a few days ordinary belts had stretched ... After six months of 24-hour-a-day service BFG grommet belts haven't stretched at all ..."

"Ordinary belts lasted only 5 or 6 weeks ... B. F. Goodrich grommet belts are in their sixth month of service ..."

"Previous belts suffered from shock loads, wore out fast ... BFG grommet belts have been in service 2 years with no shut-downs..."

There are hundreds of cases like these.

They cost no more

BFG grommet belts cost not one cent more than others. The savings they make for you are clear profit. They are made in C, D and E sections. They are patented by B. F. Goodrich. No other V belt is a grommet belt (U. S. Patent No. 2,233,294).

Write, send the coupon or see your B. F. Goodrich distributor. (He will show you his "X-ray" belt that shows the grommet construction clearly.)

Grommet Belts BY

B.F.Goodrich

FIRST IN RUBBER

The B. F. Goodrich Company
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Akron, Ohio

☐ Send set of reports telling users' experiences and showing actual installations proving that B. F. Goodrich grommet belts outlast all others.

☐ Have distributor show me the "X-ray" belt that shows how B. F. Goodrich grommet belts are made.

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Firm Name_____

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Street Address_____

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Through Thick and Thin...

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Stand up...cut clean ...stay sharp longer!

Simonds Circular Cutters, Slitters and Perforators are made to meet today's high level, continuous production requirements.... give long, trouble-free performance in all types of applications from corrugated to tissue.... shear cut or score cut.... solid, cut-in-half or inserted type. Made of Simonds edge-holding Electric Furnace Steel, scientifically heat-treated and precision ground so that they are absolutely round and of uniform thickness, Simonds Cutters run smooth and true.... stay on the job through thick and thin.... save you money in the long run. That's why it's smart to always say "Simonds" when you need Cutters. All sizes and types accurately made to machine manufacturer's specifications. Order through your local Simonds Distributor.

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Paper TRADE JOURNAL

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NEXT WEEK

No Sulfur Shortage at St. Lawrence. A description of the equipment and operation of the pyrite burner at St. Lawrence Paper Co., the only installation in North America making sulfite acid from pyrite ore, will be found in "Practical Burning of Pyrite for Sulphite Pulping" by E. P. McGinn, H. J. Lenthall, Pulp Mill Supt., St. Lawrence Paper Mills Co., Ltd. and G. E. Connally, Vice-President of Nichols Engineering & Research Corp.

REMEMBER THESE DATES

MAY 25: The Miami Valley Div., of the American Pulp & Paper Mill Supts. Ass'n., meeting at the plant of the Orr Felt and Blanket Co., Piqua, Ohio.

JUNE 3-6: National Paper Box Mfrs. Assn., Haddon-Hall, Atlantic City, N. J.

JUNE 18-22: American Society for Testing Materials, Annual Meeting, Chalfonte-Haddon Hall, Atlantic City, N. J.

JUNE 22-23: Maine-New Hampshire Section of TAPPI, meeting to be held at the Eastern Slope Inn at North Conway, N. H.

JUNE 24-28: American Pulp & Paper Mill Supts. Ass'n. National Convention, to be held at the Multnomah Hotel, Portland, Oregon.

JUNE 27-30: Empire State TAPPI, meeting at the White Face Inn, Lake Placid, N. Y.

SEPT. 16-19: American Institute of Chemical Engineers, Regional Meeting, French Lick, Ind.

OCT. 10-12: American Pulp & Paper Mill Superintendents Assn., Southern and Southeastern Div'ns., George Washington Hotel, Jacksonville, Fla.

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Farrel Rolls are made in the *world's largest specialty roll shop*. Here you will find: deep pits for the vertical casting of the largest rolls used in paper mills . . . iron chills in a complete range of sizes . . . specialized pouring and handling equipment . . . provision for the most exacting metallurgical control . . . machine tools for rolls of all types and sizes . . . Farrel swing-rest grinders with the patented automatic crowning device . . . and the exclusive Farrel roll caliper — all operated by men with broad experience in every phase of roll manufacture.

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Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL
Wednesday, May 16, 1951.

Fine Paper Demand Unabated

Retail business hereabouts is dull, even with the support of heavy promotions and clearance sales. At press time, the stock market had slumped for the fourth consecutive time and was described as "aimless."

Historically the paper market does not react to a change in general business for two or three months. Also, the May-June period is a good buying season for fine papers, notably *book* and *bond*. This year proves to be no exception to the rule, and though pinpoints of weakness have been rumored, it is not possible to track down slower buying trends, easing in machine coated papers, etc.

Wholesalers do speak of a lessening of demand for some grades of paper. This may result partly from an acceptance of the fact that the Government is taking a portion of mill production—which by and large is being sold direct through mill agents; that dealers are on allotments for their requirements, and that the mills are taking good care of them. If the distributors could get more, they would be happier, but are settling down to make what they can get stretch the farthest.

Small printers have some machine time. Large printers, however, are pressing for deliveries. They report themselves so short of stock that they are obliged to draw on carlots to meet current requirements. Particularly short—and the shortages are general—is *offset*, *mimeograph* and *uncoated book*, notably *English Finish*, all of which are wanted increasingly by the Government Printing Office and Armed Services, also by publishers who are tremendously busy with text books for public schools. Heavy gains in *offset* use for primary grade school books is reported, partly for much needed replacements, and mostly the result of greatly-expanded population in these grades.

Machine Coateds Increasingly Demanded

Reports that *machine coateds* are in easy supply seem to have sprung from offerings of seconds in the New York area. Mills report themselves terrifically oversold, and customer allotments far from adequate. Beyond continued reports of spot market offers, this columnist has been unable to trace an easing in *machine coateds* demand.

Book houses speak of the mills being late on May 15 shipments. Others have been notified that June allotments will be cancelled to permit the mills to get abreast of heavy backlogs.

The consensus is that some quiet may set in late in June and last through to the Fall buying. However, the GPO is scheduled to take 10% more tonnage than second quarter requirements, or a total of 22,500 tons made up 40% book, 45% writing grades, and 5% groundwoods. The Government Printing Office also reported second quarter orders for 1500 tons of offset papers and 1500 tons of writing grades unplaced as of last week. The Armed Forces also are seeking 20,500 tons of offset, 123 tons of writing papers, 10,000 tons of bond, 18,500 tons of mimeograph, and 600 tons of tag, the NPA advised the industry's advisers last week.

Raw Materials

Pulpwood.—Ceiling Price Regulation 38 released at the weekend set a price ceiling on pulpwoods cut in New England and part of New York State — other than that cut from land owned by pulp mills. The price varies by types of wood and where cut. Basis is $13.50 a cord for spruce and fir at roadside. Ceilings are lower than some under the GCPR of January 25 and higher than those of June, 1950, it is said.

Wood Pulp.—A series of NPA orders under consideration would channel critically short pulp for essential paper manufacture, limit producers' inventories of market pulp, and otherwise endeavor to ease paper industry problems. Outlines of the proposed new regulations were discussed with various segments of the industry during the past two weeks, Washington reports.

At a conference with members of the Pulp, Paper and Paperboard Advisory Committee, NPA said a tentative order would limit producers' inventories, limit total use of pulp producers, and limit export of pulp.

Also it would reserve probably 3 percent of pulp production of integrated mills for use by non-integrated mills. Committee members suggested that the inventory limit on market pulp be set at 45 days as a guard against too-large inventories and, at the same time, to give mills sufficient time to receive and use the pulp. The proposed limit on pulp use would be 90 percent of the base period — which committee members thought should be the last half of 1950. This would effect a savings of an estimated 290,000 tons annually.

Domestic woodpulp producers last week indicated general agreement with the terms of the proposed tailored regulations which would follow the pattern of old OPA Reg. 114 setting a dollars and cents price on standard grades of paper pulps, probably f.o.b. producing mills or f.a.s. mill dock. Indications reported were an average price somewhat below those under GCPR but perhaps above the average under the Manufacturers Pricing Regulation 22. Committeemen voiced the hope that the tailored regulation might be ready before May 28, the date when CPR 22 pricing becomes effective.

Announced during the week were expansion plans of a large domestic pulp and producer which will enable the mill to use local supplies of beech, birch and maple and thus add some 12,250 tons of bleached semi-chemical hardwood pulp to its supply annually. Future improvements will provide added capacity.

In reporting the Swedish assertion that: "U. S. pulp producers are cutting contract tonnages to their customers and selling appreciable tonnages on the spot market at prices higher than Swedish highs" — issue of May 11 — *Trends* was publicizing an oft-repeated "excuse" used to justify inflated Swedish prices. It is well-known that Swedish 1950 tonnages have either been widely cut or are subject to deferments which, in the long run, amount to the same thing. Domestic contract reservations were revised for 1951, and producers aver that they are living up to their domestic commitments.

OIT Defines Export Assistance

Procedures under which it will assist exporters to obtain priorities for commodities needed by friendly foreign countries were announced by the Office of International Trade during the week. Requests for such assistance to ECA nations will be handled by the Washington mission of the country of destination; for Canada, by Ottawa.

Priority assistance requests have been limited by OIT to three end-use classifications:

(1) Equipment or materials needed for the defense programs of friendly foreign countries;

(2) Equipment or materials needed for use in the production of strategic materials to be exported to the U. S. or to friendly countries;

(3) Equipment or materials essential to the basic economy of friendly foreign countries.

As always, exporters say, when domestic demand for pulp and paper is at record peak, we neglect our foreign markets. Unless a "tremendous howl" is put up now by sales agents and friendly foreign government representatives for allocations of necessary pulps and paper, it appears that our investments in foreign trade will be stifled.

The year 1952 might turn out to be an economic crisis, as many have predicted. The future of the Marshall Plan is still not assured. In the face of our current expansion, we do well to "take time by the forelock" and develop our foreign markets, the exporting branch of the industry warns.

Old Corrugated Price Rise

A tightening of the supplies of old corrugated containers has lifted the price of this grade again. Boston and New York mills are offering $5 more a ton for needed stocks. E.P.N.

Paperboard Production (Tons)*

	May 5 1951	Apr. 28 1951	May 6 1950
Production	251,896	248,336	207,307
New Orders	379,141	302,342	269,681
Unfilled Orders	771,457	646,878	404,445

* Source: NPA.

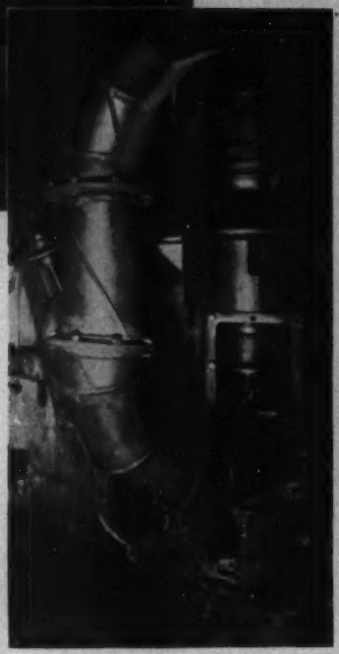
Typical horizontal agi-flo installation

PUMP OR PROP

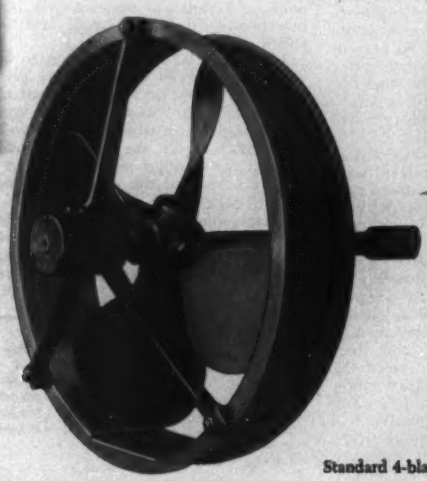
There is more to effective agitation than meets the eye. That is why Shartle *engineers* agitation layouts instead of just pulling agitating machinery "off a shelf."

Exterior—class L or agi-flo equipment.
Interior—standard and special propellers.

Shartle also supplies chest designs—horizontal, vertical, Hydracycle types.



Typical vertical agi-flo installation



Standard 4-blade variable pitch propeller

Contact Shartle on YOUR agitation problems

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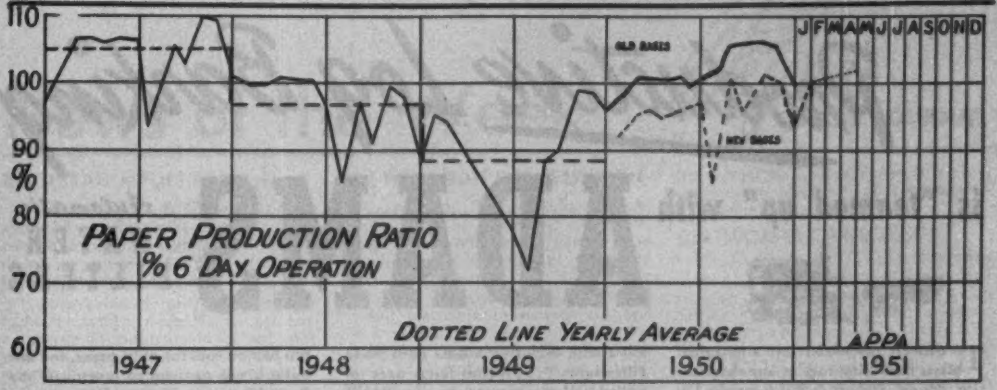


Weekly Brief of Important Figures

Source	Production	WEEK ENDING May 5, '51	Apr. 7, '51	May 6, '50
APPA	Paper Production Percent Capacity[5]	103.1	102.7	97.5
	Unbl. Kraft Paper Production Percent	96.5	94.9	96.8
NPA	Paperboard Operating Ratio Percent Inch Hours	107	106	92
		Mar. 1951	**Feb. 1951x**	**Mar. 1950**
APPA	Paper Production[6] (Except Newsprint and Building Papers) ...Tons	913,000	818,628	837,187
	New Orders ...Tons	958,000	816,052	854,627
	Unfilled Orders ...Tons	980,880	938,390	532,750
	Shipments ...Tons	916,000	810,035	840,905
		Mar. 1951	**Feb. 1951**	**Mar. 1950**
NPA	Paperboard Production ...Tons	984,405	977,946	908,600
	New Orders ...Tons	946,819	987,609	952,600
	Unfilled Orders ...Tons	704,936	758,562	371,800
	Our Customers Activities Index[1]	**Latest Mo.[5]**	**Previous Mo.[5]**	**Year Ago[5]**
FRS	Manufactures Total Index	227	227	188
	Durable Mfg. Index	269	265	204
	Nondurable Mfg. Index	194	196	176
	Chemical Products Index	288	288	250
	Mfg. Food Products Index	151	155	146
	Printing and Publishing Index	174	165	166
ODC	Magazine Advg.-Printer's Ink Index	344	347	330
	Retail Sales Combined Adjusted Index	353.1	366.9	306.0
	Drug Index	233.7	234.0	220.7
	General Merchandise Group Index	347.5	376.1	297.0
	Grocery and Combination Index	427.6	421.8	368.3
	Prices Index			
BLS	Consumers Price Index[1]	183.8	181.5	167.9
	Wholesale all Commodities[2]	183.6	180.1	152.7
	Wholesale Foods[2]	187.7	182.3	156.7
	Commodities other than Farm Products and Foods[2]	171.8	170.3	145.9
	Wholesale Pulp and Paper[6]	196.5	196.5	155.6
	Purchasing Power of Dollar, Consumers Prices[1]	54.4	55.1	59.6
	General Activity Index			
FRS	Mfg. Production-Worker Payroll	424.9	423.3	330.0
	Unemployment Compensation Initial Claims (M)	770	1,080	1,240
	Miscellaneous Carloadings-Thousands of Cars	1,373	1,498	1,296
	Electric Output (Million KW hr.)	33,102	36,726	28,789
PTJ	Average 32 P & P Common Stocks as of May 8	$39.87	$38.09	$33.66
	Average Indicated Dividends Common Stocks as of May 8	2.54	2.34	2.29

[1] 1935-39=100 Unadjusted Index
[2] 1926=100
[5] New 6-7 day basis.
[6] For details see APPA Monthly Statistical Summary—March 1951 Estimated Figures.
[5] Latest Month Available on Request
x Revised figures.

AT PORT ALBERNI, B.C.

Productive Log Barking

is "teamed up" with ADAMS Automatic WATER FILTERS

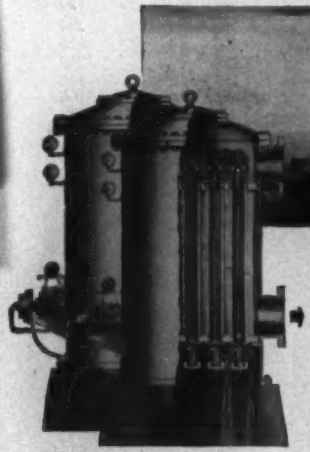
To convert raw water into a tool that blasts bark from logs of any shape or size, *Bloedel, Stewart & Welch* installed a matched team of Adams Automatic Water Filters ahead of their new Hansel hydraulic barkers.

Of critical importance in the barker's continuous, fast production and low maintenance are the films of lubricating water for seal rings as well as for main and thrust bearings. Complete removal of abrasive solids from the Port Alberni water source was necessary if precision-machined surfaces in both the barker and the high pressure pumps were to deliver full performance.

Experiment under actual conditions proved the need for a filter that would not only remove all solids down to 40 microns, but would backwash automatically — a clear case for the Adams AWF Filter with exclusive Adams Poro-Stone Filter tubes. ". . . Adams filters were installed and are performing admirably", states B. S. & W. resident manager.

If you would convert water — your cheapest raw material — into an efficient production tool for pulp, paper, and saw mills, it will pay you to investigate the R. P. Adams line of water filters now.

Send today for new 20-page, file size Bulletin No. 691 on Water Filtration in the Pulp and Paper Industry.



ADAMS AWF WATER FILTERS

HANSEL 60" RING BARKER

R. P. ADAMS CO., INC.

231 E. PARK DRIVE BUFFALO 17, N. Y.

News of the Week

Paper TRADE JOURNAL

KETCHIKAN APPLIES FOR C. N.

Ketchikan Pulp & Paper Co. has applied for a certificate of necessity in connection with its planned $40 million dissolving wood pulp mill at Ward Cove, Ketchikan, Alaska.

Favorable action on the request will make the company eligible for priority assistance in construction of the mill and will permit it to employ the accelerated tax amortization program for at least a portion of the cost.

Ketchikan Pulp & Paper has until August 2 to qualify for the purchase of 1½ billion cubic feet of timber from the Tongass National Forest in southeastern Alaska, under a preliminary award of the Forest Service, Department of Agriculture. The preliminary award was made on August 2, 1948. The date for the final award was extended until August 2, 1951, giving the company additional time to complete arrangements for construction of the mill, using the new magnesium oxide process.

MILL FOR VALDOSTA

The National Container Corp. has received a $25 million certificate of necessity which will be used for construction of a mill in Valdosta, Ga.

The mill will have a 500-ton daily rated capacity.

BUCKEYE GETS C. N.

WASHINGTON, D. C.—Latest certificates of necessity approved by NPA include Chemical Pulp Division of Buckeye Cotton Oil Co., Perry, Fla., $21,527,735, for expansion of facilities for dissolving grade pulp.

BAY WEST ADDITION

GREEN BAY, Wis.—The Bay West Paper Co., Green Bay, will erect a factory building in a new location here at a cost of $330,000.

WHIPPANY PLANS EXPANSION

The Whippany Paper Board Co. will construct an addition to its plant at Whippany, N. J., in about six months according to Anthony Desiderio. president.

The building will house paper board manufacturing machinery.

HUDSON ADDS PUMPS

Expanded facilities at the Hudson Pulp and Paper Co., Palatka, Fla., will include 28 centrifugal pumps of Worthington Pump & Machinery Corp.

ASK NEWSPRINT CONSERVATION

WASHINGTON, D. C.—Reduced waste in newsprint by efforts of the newspapers themselves is the best method of avoiding a government limitation order on newsprint, it was agreed at a meeting between representatives of leading metropolitan newspapers and NPA officials this week.

Given an aggressive effort to check waste, NPA spokesmen told the gathering, the industry should be able to get enough newsprint to meet its needs.

However, the NPA members stressed that no limitation order is now planned and if conservation measures prove successful, none may become necessary.

If domestic and Canadian production continues at the present rate, it was reported at the meeting, about 5,939,000 tons of newsprint will be available for use in the United States this year, against a predicted U. S. consumption of 5,889,000 tons.

CERTIFICATES OF NECESSITY

WASHINGTON, D. C.—Latest certificates of necessity approved for expansion of paper or related products facilities, announced this week included:

National Container Corp., kraft pulp for paper, applied for, $25 million, of which $23,165,000 was eligible, and 60 percent certified; Crown Zellerbach Corp., Camas, Wash., pulp, applied for, $19,795,500; eligible, $19,732,769; certified, 65 percent; New England Forest Products, Inc., Berlin, N. H., wood fibre board, applied for, $2,850,000; eligible, $2,762,000; certified, 50 percent; Gaylord Container Corp., Bogalusa, La., sulphate pulp, applied for, $6,975,630; eligible, $6,205,363; certified, 60 percent.

Nekoosa-Edwards Double-row tree planter

Outstanding features of the new machine are that it plants two rows of trees at the same time whereas other standard tree planting machines are designed to set out only one. Two standard Lowther planting rigs are mounted side by side on the rear of an International TD6 cat-type tractor. . . . The device is mounted in such a manner that the entire mechanism and planting crew can be instantly elevated by hydraulic jacks for speed and efficiency in turning around at the end of the field. Other standard planters operate on a trailer principle and require more time and room for the wide arc in turning around. . . . On the first eight-hour trial run, the new planter set out 24,000 trees, nearly double the number usually planted with single-row models. When the crew becomes better familiarized with the new machine, it is expected that the planter rate will be further increased. . . . Two single-row planters require two tractors and six men for planting. It is expected that four men and one tractor can accomplish the same job with the new planter.

FISH FOOD FROM SPENT LIQUOR

A fish food made from spent sulphite liquor by paper industry scientists has astonished practically everyone by providing a new and better source of nourishment for trout. Feeding experiments at the Lakewood hatchery of the Wisconsin Conservation Department show that trout thrive on a diet containing plenty of torula yeast made from the liquor. All trout reared at Lakewood are now getting 15% of torula in their daily ration, and are doing better than ever before.

Torula yeast made by the paper industry was first tried at Lakewood hatchery in the summer of 1949. After early tests proved that fingerlings prospered on torula diets, more comprehensive feeding experiments got under way.

Before long the Conservation Department's biologists and fish management experts learned that by using 10% to 15% of torula yeast, they could give the fish 20% less food and still raise bigger, healthier trout. Also, some inexpensive diets for trout which were short on vitamins became adequate by adding small percentages of vitamin-rich torula yeast.

FIBREBOARD'S NEWEST PLANT

Fibreboard's huge pulp mill at Antioch is scheduled to grow even bigger, according to C. R. P. Cash, San Joaquin Division plant manager. The newest Antioch phase of the 10-year expansion and plant betterment program started in 1946, involving capital expenditures upwards of $50 million, will be the installation of a converting plant to produce the popular Ex-Cell-O Pure-Pak "gable-roof" type milk container.

In order to roll out literally millions of these containers each month, a completely new and ultra-modern production line will be set up. With this installation the containers will be produced in continuous operation from California fir trees to the paperboard milk containers, then packed in corrugated shipping cases for shipment to the dairies. The corrugated shipping cases are also made in Antioch, but at the other Fiberboard mill.

Several innovations have been introduced into the manufacturing process by Fibreboard and Ex-Cell-O engineers. In one or two instances, special machinery has been devised to increase manufacturing efficiency. The new operation is streamlined and much more rapid than the present method. Special lift trucks take the rolls of bleached white paperboard stock from the paper machine storage directly to the specially designed equipment where multi-colors may be printed and cartons blanked out and stripped in one operation. The milk container blanks now are ready for folding and gluing. Five large folder-gluers, set up side by side, receive the container blanks. The cartons, when they come from the converting plant, are folded like envelopes, greatly facilitating shipment and storage. From the gluing machines, the cartons are packed into shipping containers, then transported by conveyors to a case sealer for sealing the top and bottom to be made ready for shipment.

Although no starting date has been definitely set, it is expected that the converting plant will be in operation sometime late in 1951.

A.F.L. WINS ELECTION

WEST GROTON, Mass.—The A. F. L. Paper Makers Union yesterday defeated the C. I. O. Paper Workers Union in the first attempt in New England to take over a paper plant under A. F. L. contract.

Workers at the Hollingsworth & Vose Co., West Groton, voted, 103 to 55, to continue with the A. F. L. Paper Makers as bargaining agent in the plant. The A. F. L. Union has represented the employes 12 years.

Petitions for N. L. R. B. representation elections in the mills of five Holyoke companies have been filed by the C. I. O. union.

U. S. AID IN PAPER SEARCH

The house monopoly committee recommended positive government action for development of newsprint sources in Alaska and the south. Alaska has natural resources capable of yielding one million tons of newsprint annually.

PEOPLE

T. E. ALWYN, general manager of sales, has been elected vice-president in charge of sales of the American Can Co. R. F. Hepenstal, former assistant general manager of manufacture, has been elected vice-president in charge of manufacture. Vice-presidents L. W. GRAASKAMP and R. C. TAYLOR, heretofore in charge of sales and manufacture respectively, will work directly with the principal executive officers in the overall administration of the company.

H. E. WHITAKER has been advanced to executive vice-president of the Mead Corp., replacing J. O. Mason, who retired from the vice-presidency but will remain with the company in a consulting capacity. Also appointed are two new vice-presidents, H. T. MEAD and H. A. KIDD. ARCHIBALD D. FRASER was named assistant treasurer.

STUART E. KAY and F. HENRY SAVAGE, veteran employees of International Paper Co. were elected vice-president. Mr. Kay has served since 1936 as Manager of Manufacturing, Northern Mills, and Mr. Savage was appointed last January to the position of Assistant General Sales Manager. Both will continue their present responsibilities.

Donald M. Rochester

Donald M. Rochester, formerly manager of the Industrial Division of American Forest Products Industries, Inc., has been named secretary to the community relations committee of the American Paper and Pulp Assn. Mr. Rochester will work under the general supervision of a 12-man industry committee headed by N. H. Bergstrom, president of the Bergstrom Paper Co., Neenah, Wis.

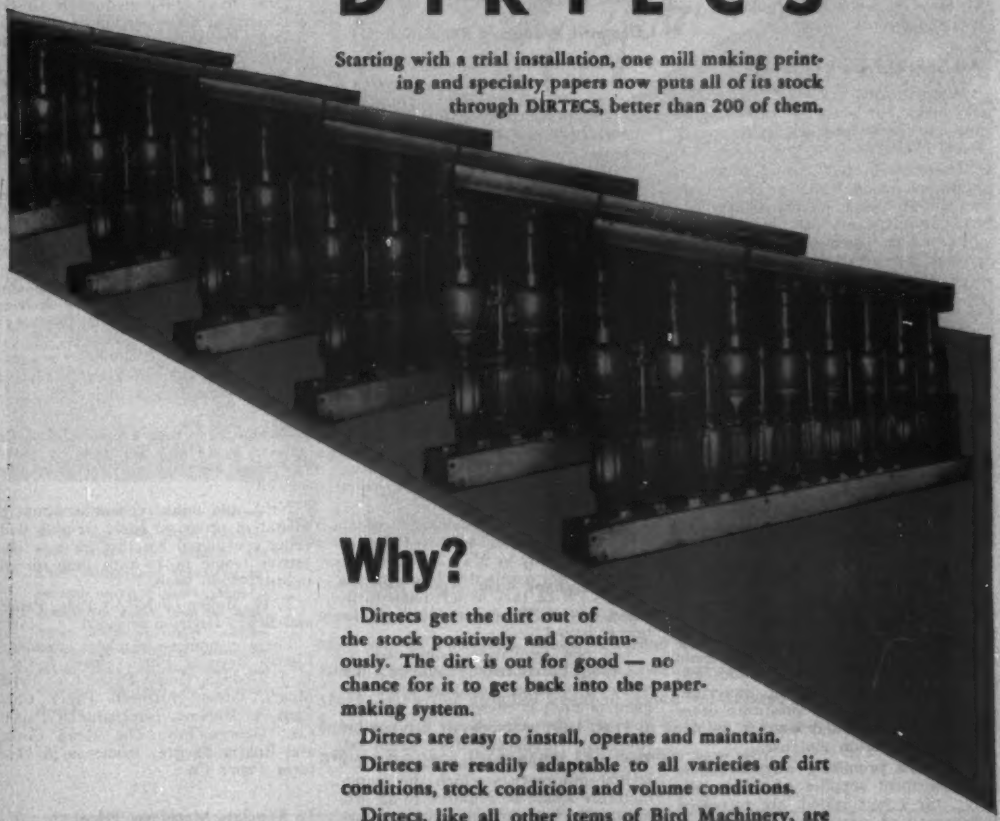
ELWOOD L. DEMMON, former director of the Lake States Forest Experiment Station in St. Paul, Minn., has arrived in Asheville, N. C., to assume his new duties as director of the Southeastern Forest Experiment Station there. Mr. Demmon had been in charge of the Lake States station since 1944. From 1928 until 1944 he directed the Southern Forest Experiment Station in New Orleans. Before joining the Forest Service in 1925, Mr. Demmon spent eight years in Sumatra, Netherlands East Indies, doing research for the Goodyear Tire and Rubber Co. He spent six months in Central America for Firestone Tire and Rubber Co. DR. I. T. HAIG, whom Mr. Demmon succeeds, is now in Rome, Italy, as a staff member of the UN Food and Agriculture Organization. He is in charge of research and technology for the FAO Division of Forestry and Forest Products.

ROGER L. MAIN has become president of the St. Joe Paper Co., Jacksonville, Fla., succeeding EDWARD BALL, who has been elected chairman of the board. Mr. Ball has headed the Du Pont interests in Florida, including St. Joe Paper Co., since the death of Alfred I. DuPont. Mr. Main has been with the company for many years, having moved to the presidency from vice-president in charge of finance.

GILBERT L. HEATH, Fort Edward paper mill superintendent of Scott Paper Co., will become production manager of the Chester plant effective July 23. He will be replaced by NATHANIEL G. McLEAN who is presently a division manager at the Fort Edward plant. In late May, FRED HERBOLZHEIMER, JR., technical control director at South Glens Falls, will become assistant superintendent of pulp preparation at the Chester plant. He will be replaced at South Glens Falls by RICHARD MOONEY of the Chester plant.

.....and now they have more than 200 DIRTECS

Starting with a trial installation, one mill making printing and specialty papers now puts all of its stock through DIRTECS, better than 200 of them.



Why?

Dirtecs get the dirt out of the stock positively and continuously. The dirt is out for good — no chance for it to get back into the paper-making system.

Dirtecs are easy to install, operate and maintain.

Dirtecs are readily adaptable to all varieties of dirt conditions, stock conditions and volume conditions.

Dirtecs, like all other items of Bird Machinery, are built to help you make *better paper and more of it per day at lower cost per ton.*

BIRD MACHINE COMPANY

SOUTH WALPOLE • MASSACHUSETTS

GOVERNMENT GOSPEL

Industrial Tape Mfrs. Prefer GCPR22

WASHINGTON, D. C.—Industrial tape manufacturers prefer for the time being to price their products under the Manufacturers' GCPR 22, rather than under a specially-tailored, industry-wide pricing formula.

Their products are of such a wide variety, an industry committee pointed out to OPS officials, that it would be impractical to compute common weighted-average percentage cost increase factors. Calculating their costs under the CPR 22 is extremely complicated in any case and they expressed doubt that this job can be completed by May 28, when the regulation goes into operation.

Ask Special Price Regulations

WASHINGTON, D.C.—OPS was asked this week for a special price regulation for special products of the paperboard industry.

Three committees were appointed to study and report which products could be placed under specific dollars and cents ceilings in such categories as food boards, special cardboards and special industrial boards. They will meet May 23 and are expected to report at that time. Items which cannot be priced on an industry-wide spelled-out basis, it was suggested, should be priced by formula based on costs or differentials.

Sulphur Shortage

WASHINGTON, D. C. — World requirements, outside of Iron Curtain areas, in 1951 are expected to exceed supply by at least 1,000,000 tons, the Sulphur Committee of the International Materials Conference reported last week.

This shortage may be intensified as the demand for sulphur gains, the report continued, making it essential that not only must production of native sulphur be maintained and if possible increased, but that maximum effort should be made to produce and use other sulphur-bearing materials, conserve sulphur and substitute other materials for it, and control its domestic distribution and use.

The most promising ways available to supplement supplies of native sulphur, the report stated, are increased production of pyrites and larger use of these for making sulphuric acid, larger use of waste smelter and industrial gases, and expansion of use of such raw materials as anhydrite and gypsum in manufacture of sulphuric acid and ammonium sulphate.

Since some of these measures obviously will take time, it was added, it is essential meanwhile that sulphur be conserved as much as possible, and restricted to essential purposes or where it cannot be replaced by other materials. The Committee reported it is considering methods of effective distribution of available supplies of sulphur.

The Committee recommended that each country impose its own measures, recognizing that some already have imposed restrictions, and meanwhile, has asked each country to supply pertinent data on its situation not later than next October 31.

Meanwhile, the report said, sulphur production from this country is not keeping pace with demand and the known reserves of sulphur in these domes are not large enough to meet world demand at current levels.

Domestic Woodpulp Regulation

WASHINGTON.—Domestic woodpulp producers' representatives have expressed general approval of a proposed specially-tailored regulation for their industry by the OPS, which would follow the lines of OPA Regulation 114, of World War II days.

The regulation would provide dollars and cents prices on standard grades of woodpulp, including bleached sulphite, unbleached sulphite; bleached and semi-bleached, northern unbleached and southern unbleached sulphate; bleached soda, groundwood, sulphite screenings, sulphate screenings, groundwood screenings, unbleached sulphate side runs and standard newsprint side runs.

The contemplated ceilings, it was indicated, would probably average somewhat under the average ceilings in the GCPR, but perhaps above the average ceilings as they would be computed under the Manufacturers' General Ceiling Price Regulation.

Members of the industry recommended that, if the proposed regulation is not ready by May 28, when pulp producers are required to begin pricing under CPR 22, they be left temporarily under the GCPR until the new regulation is issued.

The new regulation would tend to encourage production, industry men believed, provided Canadian prices remain in line; if these moved upward, however, the Canadians can outbid American producers for pulpwood. The new regulation would establish freight differentials which the manufacturers would be required to absorb, similar to those in 114, plus increases since.

Groundwood Paper Meeting

NPA told members of the Groundwood Paper Manufacturers Industry Advisory Committee that it is considering the issuance of an order on wood pulp designed to relieve the current shortage of pulp for paper manufacturing and assure production for defense and defense-supporting activities.

The industry manufactures groundwood printing papers used for certain types of publications, mimeograph and teletype paper, telephone directory and catalog paper and hanging raw-stock for wall paper.

The proposed order would consist of a series of steps to alleviate the present situation. These steps would:

(1) Limit producers' inventories of market pulp to from 30 to 45 days supply to distribute the available supply more equitably.

(2) Limit the use of the pulp produced to approximately 90 percent of former use to effect a saving of approximately 290,000 tons of pulp annually.

(3) Limit, by quota, the export of pulp.

(4) Order integrated mills to reserve two or three percent of pulp production for non-integrated mills in the United States.

NPA officials said that current requirements of groundwood mimeographing paper for the armed services are 1,8500 tons and that orders have been placed for 3,500 tons of this amount.

Current needs for groundwood teletype paper were estimated at 6.300 tons, of which 1,600 tons would be blue, pink, yellow and white colored paper.

Requirements for the Government Printing Office for the third quarter beginning July 1, industry members were told, would be 1,000 tons of machine coated paper, 100 tons of groundwood mimeograph paper and 85 tons of manila, railroad card, and wood cardboard.

Committee members reported that the industry is working generally on a six-day week but that there still is idle capacity.

NPA told industry members that a limitation order on basic weights was being considered but that its only objective would be to save pulp on an industry-wide basis.

T. H. Mullen of NPA's Pulp, Paper and Board Division presided.

These committee members attended: Lyman Beeman, Finch, Pruyn & Co.; E. J. Doonan, Gould Paper Co.; Fred Mears, Great Northern Paper Co.; Paul A. Mahony, International Paper Co.; George Fay, The Mead Corp. and Robert Faegre, Minnesota & Ontario Paper Co.

To Regulate Machinery Prices

WASHINGTON, D. C.—A forthcoming OPS order will put under price regulation all pulp, paper and paper products machinery along with most items of major industrial machine equipment. An industry advisory committee, meeting recently with OPS, withheld specific recommendations until they can study the forthcoming order, after which they might submit detailed information for a specific pricing formula for the industry.

Potlatch Forest's *New 800 ft long machine room with it's modern*

ROSS *Air Systems*

View of Potlatch Forest's new machine room with ROSS Insulated Panel Hood over machine and ROSS Heating and Ventilating apparatus above. Insert shows 6 exhaust fan outlets from the hood. Other ROSS equipment includes heating and ventilating systems for Beater Room, Finishing Room and Basement as well as Calender Cooling.

"Paper Over" was announced by Potlatch Forest's, Inc. in slightly more than 11 months from the day ground was broken for their great new mill at Lewiston, Idaho. On that day it became the first mill to make and use virgin wood pulp in an entire area extending over 14 states. Another epochal event in which the dependable ROSS Air Systems played their important part in helping to insure maximum operating efficiency throughout this notable new mill.

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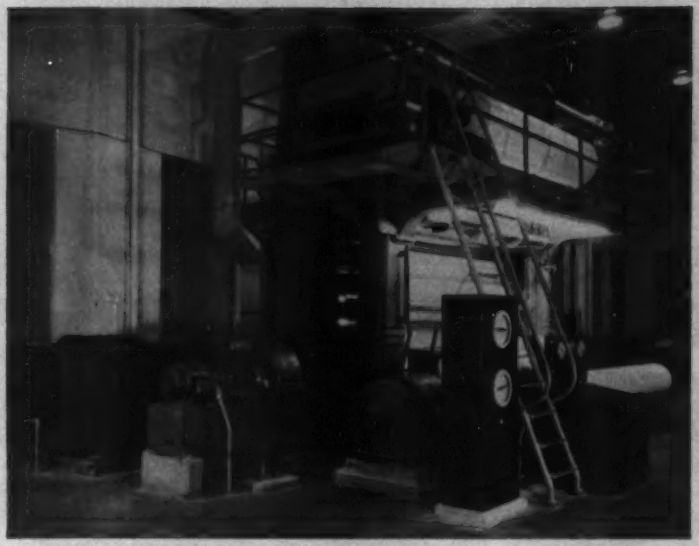


FASTER SUPER-CALENDERING!

G-E supercalender drives keep your supercalender ahead of your paper machine by providing faster, smoother acceleration and deceleration to increase your daily output and minimize paper breaks. Uniform threading speeds reduce setting-up time to a minimum. Quick emergency stopping minimizes costly damage to calender rolls. Centralized control simplifies supercalender operation. In this Maine paper mill, the supercalender, unwind and windup units are all electrically driven, automatically holding desired sheet tension.

Get the finished

FASTER CONVERTING!

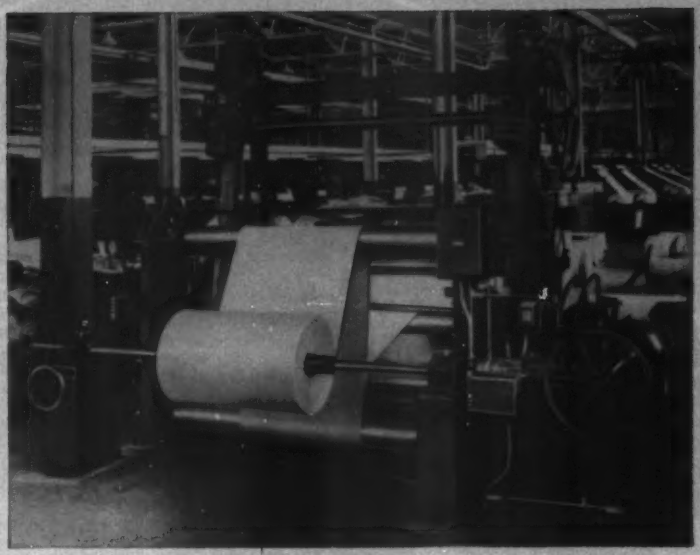
Keeping speeds in step for an entire converting machine from one control point, G-E packaged Speed Variator drives assure faster acceleration, fewer breaks, less waste and time lost. The Speed Variator unit, with motor-generator and a-c and d-c control in a compact package, cuts installation cost, makes future converting-room rearrangement easier and less costly. The G-E co-ordinated drive for this 78-inch double-deck corrugating machine uses centrally-controlled individual d-c motors to drive corrugating rolls, adhesive rolls, straw board feeder, adhesive glue roll, and double-facer roll.

GENERAL ELECTRIC

6514

FASTER REWINDING!

Complete, accurate control of sheet speed and tension—for more rolls per day—is provided by G-E rewinder drives. Threading, running speeds and stopping are faster, and every roll is wound to the hardness you want. Soft starts reduce paper breaks. In addition, in this slitting-rewinding operation, G-E side-register control maintains accurate register continuously, automatically—reducing trim waste, increasing production. Spoilage in other finishing-room operations is also reduced by G-E cut-off and color register controls.



paper—faster!

General Electric drives for paper finishing and converting—individually engineered to your needs—can help you step up production—meet customer specifications more economically!

FASTER BAG-MAKING!

Driving a bag-printing machine, this 5-hp G-E Type ACA induction motor is only one of many G-E single-motor adjustable-speed drives that help speed up operations on cutters, conveyors, packaging machines, etc.

In papermaking, every step is important, but the pay-off is in the finishing room! And that's where—to help you maintain top customer satisfaction—General Electric offers you the broadest range of dependable electric equipment to meet your every finishing-room need. Engineered to your individual requirements by experienced industry specialists, it's also backed by quick, on-call service from any of 30 service shops to keep your output uninterrupted. With this G-E team helping you, you boost finishing-room output—meet your customers' quality specifications in less time and at lower cost. Find out from your G-E representative—soon! *General Electric Company, Schenectady 5, N. Y.*

CO-ORDINATED DRIVES

for Paper Finishing and Converting

Appoint Task Group

A task group to make a study of Government paper specifications was appointed by the NPA at an organizational meeting of the Book Paper Manufacturers Industry Advisory Committee.

NPA told industry members the prime objective is to secure maximum production of paper for defense and defense-supporting activities and that a study of Government specifications with a view toward standardization in the light of present conditions should prove profitable as a move to get equitable distribution of the production load.

The Industry manufactures book papers, both coated and uncoated, envelope and other miscellaneous types of paper and paper for offset printing.

Industry members were told the current requirements for the armed services are 20,500 tons of offset paper, 123 tons of writing paper, 10,000 tons of bond paper, 18,500 tons of mimeograph (both groundwood and sulphide), and 600 tons of tag paper.

The Government Printing Office, the committee was told, will require 22,500 tons of all grades of paper for the third quarter beginning July 1. Of this amount, 40 percent is book grades, 45 percent writing grades, 5 percent groundwood grades. This amount is 10 percent above the requirements of the second quarter. Orders for 1,500 tons of offset and 1,500 tons of writing paper remain unplaced from the second quarter.

NPA said it is considering issuance of an order designed to channel supplies to relieve the current shortage of pulp for paper manufacturing and assure production of defense and defense-supporting activities.

The proposed order, NPA said, would consist of four steps which would:

(1) Limit producers' inventories of market pulp to from 30 to 45 days supply to distribute the available supply more equitably.

(2) Limit the use of pulp produced to approximately 90 percent of former use.

(3) Limit, by quota, the export of pulp.

(4) Order integrated mills (mills which produce pulp and manufacture paper) to reserve two or three percent of pulp production for non-integrated mills (which buy pulp and manufacture paper) in the United States.

NPA told the committee it is currently working with the OPS on measures to alleviate the shortage brought about by the increase in prices of Scandinavian pulp.

Industry members said they are working generally on a six to seven day week and are limited in capacity only by the shortage of pulp.

T. H. Mullen of NPA's Pulp, Paper and Board Division presided.

Committee members are: N. H. Bergstrom, Bergstrom Paper Co.; H. W. Suter, Champion Paper & Fibre Co.; A. P. Story, Chillicothe Paper Co.; F. H. Murtfeldt, Consolidated Water Power & Paper Co.; R. M. Beckwith, Crocker, Burbank Papers, Inc.; John D. Zink, Hammermill Paper Co.; Carl M. Fellows, Fitchburg Paper Co.; P. G. Sharp, Kimberly Clark Corp.; J. R. Atwater, Mead Sales Co.; D. L. Stocker, Michigan Paper Co.; Amor Hollingsworth, Tilestone & Hollingsworth Co.; George Olmsted, Jr., S. D. Warren Co. and W. L. Jennings, West Virginia Pulp & Paper Co.

Propose Inventory Limits

NPA outlined to members of the Pulp, Paper and Paper Board Advisory Committee a plan it is considering to help the industry meet its increasing production requirements.

The proposed limit on pulp use would would place limits on producers' inventories, on the total use of pulp produced and on the export of pulp. It would also reserve a given amount, probably three percent, of the pulp production of integrated mills for use by non-integrated mills. (Integrated mills produce pulp and manufacture paper, whereas non-integrated mills buy pulp with which to manufacture paper.)

Committee members suggested the inventory limit on market pulp be set at 45 days. This, members said, would guard against too-large inventories and at the same time give mills sufficient time to receive and use the pulp.

The proposed limit on pulp use would be .90 percent of a base period use and committee members suggested that the last six months of 1950 be used as the base period. A purpose of the limit, which would save an estimated 290,000 tons annually, would be to encourage pulp conservation through reduction in the basic weight of paper (making a lighter grade of paper) and the use of waste paper where possible to supplement the use of pulp.

NPA told the committee that it is conferring with the OPS on a proposal to establish a price ceiling on overseas pulp and a specific price ceiling on domestic pulp.

Explaining the three percent reserve on production of integrated mills for use by non-integrated mills, NPA said the aim is to route needed amounts to non-integrated mills to permit them to continue production. If there is no demand by non-integrated mills for this reserve, integrated mills would be permitted to use it.

NPA also warned the industry that the shortage of sulfur is likely to cause an eventual reduction in paper production, although thus far the industry has received enough sulfur to meet essential requirements.

NPA urged that every possible action be taken to conserve sulfur and to develop new sources of supply.

The committee also was told of a proposed order on inventory control of wire cloth used in the manufacture of pulp, paper and paper board. This action is being planned, NPA said, to insure the fullest use of copper and other scarce metals by the pulp, paper and paper board industry.

G. J. Ticoulat, Director of the NPA Pulp, Paper and Paper Board Division, presided.

Committee members are: M. C. McDonald, Chesapeake Corp. of Va.; H. Lee Rauch, Consolidated Paper Co.; W. Irving Osborne, Jr., Cornell Wood Products Co.; R. A. McDonald, Crown Zellerback Corp.; George E. Dyke, Robert Gair Co., Inc.; H. H. Hanson, W. C. Hamilton & Sons; Cola G. Parker, Kimberly-Clark Corp.; Leo E. Croy, Marathon Corp.; Eugene Holland, Masonite Corp.; D. K. Brown, Neenah Paper Co.; Peter S. Paine, New Cork & Pa. Co., Inc.; Rex Hovey, Oxford Paper Co.; J. D. Zink, Hammermill Paper Co.; Sidney Frohman, Hinde & Dauch Paper Co.; H. G. Wintgens, Hoberg Paper Mills, Inc.; S. K. Nicholson, Hollingsworth & Vogt Co.; W. B. Zimmerman, Howard Paper Mills, Inc.; Sidney Ferguson, Mead Corp.; H. R. Weaver, International Paper Co.; Florence M. Lynch, Pacific Paperboard Co.; Amor Hollingsworth, Penobscot Chemical & Fiber Co.; John L. Riegel, Riegel Paper Corp.; W. J. Dixon, St. Regis Paper Co.; Henry D. Schmidt, Schmidt & Ault Paper Co. and George Olmstead, Jr., S. D. Warren Co.

Pollution Abatement

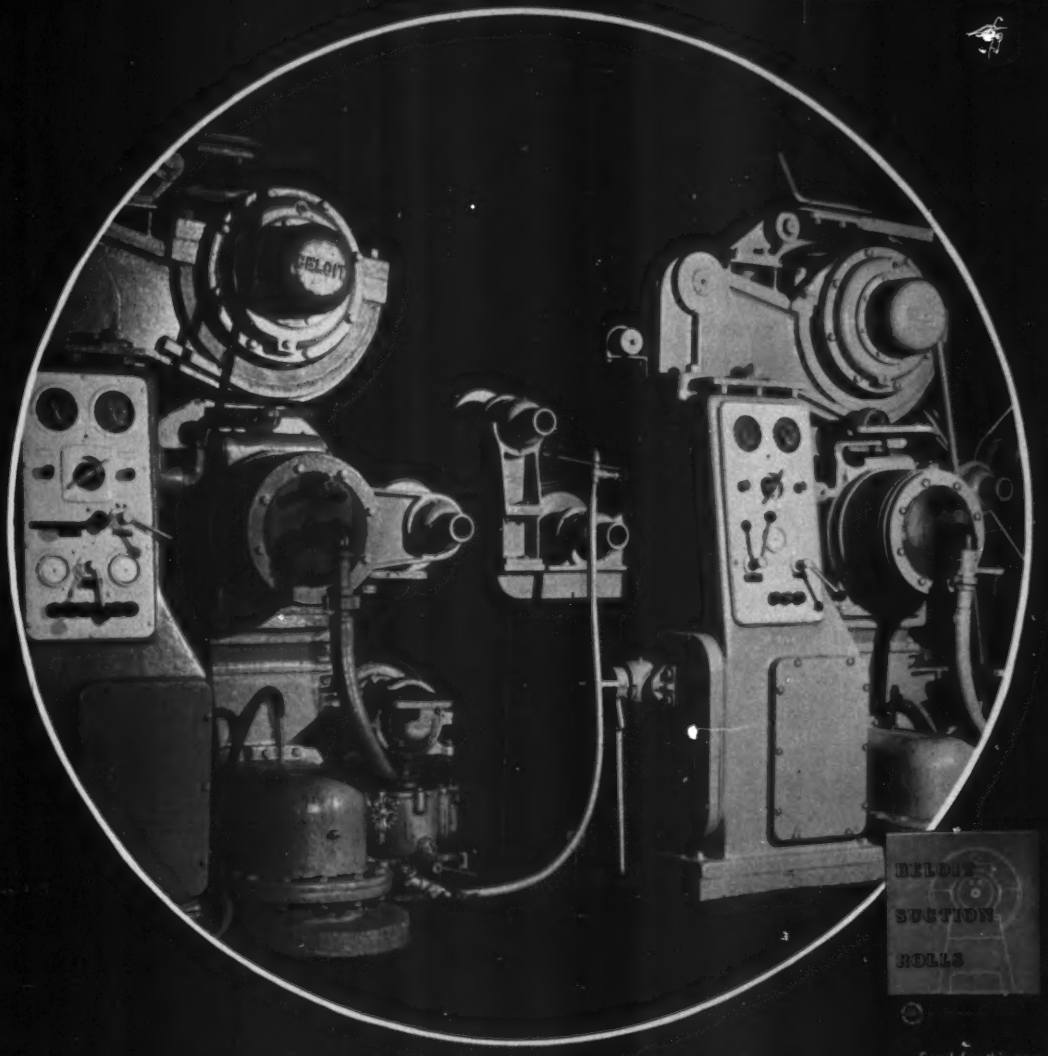
WASHINGTON, D. C. — Widespread construction of water treatment facilities will be necessary in the next decade to offset pollution, the Federal Security Agency and Public Health Service reported this week.

"Pollution is so seriously cutting down the supply of usable water for industrial and domestic requirements," said the report, that such additional treatment facilities are necessary "to conserve water resources for the nation's current emergency needs and future growth."

The agency released a report, "Water Pollution in the United States," in which are the first national summaries of data from initial Federal and State studies looking to development of comprehensive pollution abatement programs. These indicate that to meet present needs for 10,000 new waste treatment plants, replacements, additions or enlargements, and to keep up with future industrial expansion and population growth in the next 10 years, public and private investments of $9 billion to $12 billion will be required.

Wage Hearing

WASHINGTON, D. C.—A public hearing has been called for June 6 on whether to amend the present 75 cents an hour minimum wage for the envelope industry, under the Walsh-Healey public contracts act.



Send for this new Illustrated Story of Beloit Suction Rolls

Straight through for speed

Beloit Suction Presses not only provide an *economical* means of water removal, but contribute to the high speeds of modern paper machines by minimizing "crushing" of the sheet, which formerly limited machine speed. Simple, sturdy design assures smooth operation; a single panel on the front frame controls draw, clutch, and separate air loading at each end of top roll.—*Beloit Iron Works, Beloit, Wis.*

WHEN YOU BUY BELOIT... YOU BUY MORE THAN A MACHINE!

BELOIT

PAPER MACHINERY

SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*MINING

The process of mining sulphur, as developed by Herman Frasch, takes advantage of the fairly low melting point of sulphur (about 240° Fahrenheit). The process resolves itself into three parts: one, operating a power plant that heats and pumps to the field large quantities of water; two, distributing the hot water through wells to melt the underground sulphur, and raising the melted sulphur to the surface; three, cooling and solidifying the sulphur in large vats from which it is broken and loaded into cars for shipment.

The power plant and water reservoir, as well as the vats and permanent structures, are placed at some distance from the sulphur deposit to avoid possibility of damage from surface subsidence, resulting from extraction of the underground sulphur.

Loading operations at our Newgulf, Texas' mine

TEXAS GULF SULPHUR CO. INC.

75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

The Yankee Machine For Dry or Semi-Creped Tissue*

L. R. ADKINS[1]

While we speak of Yankee machines, the name "Yankee" refers only to the type of dryer used, and Yankee dryers may be found in combination with either a cylinder or a fourdrinier wet end. Since the wet ends used are conventional types, it is in the dryer that the Yankee machine differs from the usual paper machine.

The Yankee dryer principle comes from Germany where it was first used in the early part of the nineteenth century. Development of this type of dryer was confined to European countries until after 1880 before it was introduced into the United States.

Physically, the more common type of Yankee dryer is a cast iron drum, similar, in construction, to conventional dryers but made in diameters ranging from four up to twelve feet. These dryers on present day machines are built for 50 to 100 lbs. maximum steam pressure. The trend for modern high-speed machines is toward larger sizes, so that dryer diameters under eight feet are seldom found on the newer machines.

At the present time, the twelve foot dryer[2] seems to be about the limit for cast iron. Above this diameter the shell thickness required, by the Code for Unfired Pressure Vessels, increases so rapidly that the heat transfer drops at a rate greater than the increase in dryer area. The result is that there is little or no gain in the drying capacity of cast dryers over twelve feet in diameter.

A newer type of welded steel dryer is made up of an annular steam chamber of welded steel plate supported on hollow spokes through which steam is introduced to, and condensate removed from the steam chamber. Because of the greater strength of rolled steel plate as compared to cast iron, thinner walls can be used. This type thus offers promise of substantial gains in drying capacity in sizes larger than twelve feet, and would appear to be the answer to the demand for greater drying capacity as machine speeds are increased.

The Yankee dryer is used in European mills on a wide variety of papers ranging from condenser paper up to light Bristol board. In this country, however, the use of the Yankee has been confined to light weight papers, such as condenser, cigarette, facial tissue, toilet tissue, towel, napkin, etc.

The high drying efficiency of the Yankee is due to the fact that the sheet adheres firmly to the polished dryer surface. This adhesion eliminates the insulating layer of air present between the sheet and the dryer surface on all conventional dryers, and also eliminates the necessity for a felt to carry the sheet over the dryer. Thus heat transfer is direct from dryer to paper and evaporation is unrestricted, with the result that drying rates range from three to five times as high on Yankees as on conventional dryers. For this reason, a single twelve foot Yankee dryer has the same capacity as twelve to sixteen regular dryers.

Moreover, when the wet sheet is pressed onto the hot surface of the dryer, the web is greatly compacted. This gives the sheet greater smoothness and strength, and allows the use of freer, softer, faster drying stock than would be possible with conventional dryers.

The Yankee is particularly well adapted to making creped sheets, since the creping can be done from the dryer surface, and an extra creping operation eliminated.

The creping is done in the conventional way, with a properly filed doctor blade running against the dryer face. Such a doctor is beveled in the same manner as a cleaning doctor, but has the sharp edge squared off — usually with a file. The width and exact angle of this square edge with respect to the dryer face determines the fineness and degree of crepe secured. For satisfactory creping, the sheet must adhere firmly to the dryer surface.

This adhesion of the sheet to the dryer is of utmost importance to the successful operation of the Yankee dryer, and may be modified to any desired degree by proper control of pH and furnish. When a flat, uncreped sheet is being run the adhesion is held so that the sheet when dry, will strip readily from the dryer to be taken through the calender to the reel. The sheet to dryer bond for a creped sheet is much stronger, and the sheet can only be removed by the creping blade.

While there are many variations, the common type of Yankee Fourdrinier machine makes use of a pick-up felt to carry the sheet. This felt runs under a top couch, through the press and over the pressure roll, after which it goes through the felt showers and conditioners before returning to the couch. There is also usually a light bottom or wet felt which runs through the press to assist in water removal at this point.

The pick-up felt in going under the top couch, in contact with the wire, picks up the sheet from the wire and carries it through the press. The sheet runs through the press between the pick-up and the wet felt, and is then carried on the pick-up felt to the pressure roll. This pressure roll brings the sheet on the pick-up felt into firm contact with the dryer face under considerable pressure, and the sheet is thus transferred from the felt to the dryer to which it adheres firmly until taken off, or removed by the creping doctor.

All or nearly all modern Yankee machines use a Fourdrinier wet end. There are, however, many older machines in operation on which the sheet is formed on a cylinder. Since these machines are usually much slower running, it is not unusual to omit the press, and its wet felt, and carry the sheet directly from the couch to the pressure roll, depending only on several suction boxes to remove water from the sheet on the felt, supplemented by some water removal at the pressure roll.

These comparatively slow machines usually make a very fine, well formed sheet with a pronounced grain. However, unless some means is found to speed up the cylinder wet end, this type of machine because of the production limitations will, in time, probably be entirely supplanted by the faster Fourdrinier. Thus the limit of present day cylinders seems to have been reached at somewhat less than 500 feet per minute, while the slower modern Fourdriniers run at around 1,000 feet per minute, with some operating up to 1,500 fpm and a few at speeds of over 2,000 fpm.

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[1] Chief Chemist, Pond's Extract Co., Mechanic Falls, Me.

[2] Ed. Note: Railroad clearances also limit diameters.

* Part of a continuing series of lectures delivered in classes in Pulp & Paper Manufacture at the University of Maine.

Some work is still being done toward speeding up the cylinder, but the bulk of development effort is toward faster Fourdriniers.

In common with most other types of paper machines, the problem of higher speeds boils down to the rate of water removal from the sheet. On the wet end, the problem is one of fluid flow. A suspension of .5 percent solids in 99.5 percent water must be distributed smoothly across the wire, and the greatest possible percentage of the water drained away through the wire in such a manner as to leave a uniform web of fiber behind.

In the press section, which, so far as water removal is concerned, includes the couch, the press and the pressure roll, water is removed by pressure and suction. Pressure squeezes the water out of the sheet into and through the felt. Suction removes the water from the felt to make room for more water from the sheet.

On the dryer, the water must be removed by evaporation. This involves supplying the greatest possible amount of heat to the sheet, and removing the resultant moisture vapor as rapidly as possible.

The Fourdrinier design for light weight tissue necessarily differs somewhat from that used for the heavier grades, but the operating principles remain the same. Intensive development work at the present time keeps this type of wet end in a constant state of change, and a detailed description would be of little value.

With such a light weight sheet, the problem is to drain about 4000 to 5000 gals. of water per minute away from the sheet in the shortest possible wire travel, and leave a well closed sheet weighing only 7.5 lb. per ream (24 x 36—480) on the wire. Present efforts are therefore concentrated on introducing the stock to the wire under pressure, and removing everything possible from under the wire which would impede drainage. This has resulted in a trend toward comparatively short wires having no shake and very little if any pitch, with some type of patented pressure slice and open faced dandy type table rolls of rather large diameter.

Water can be removed in the presses at a relatively low cost, and with very little effect on formation. However, the amount which can be removed in this manner is definitely limited by the percentage of entrained water which can be freed from the sheet by pressure. The suction press is used on nearly all high speed machines, and its principal purpose is to insure that all water released by the pressure of the press, will be taken away, so that it cannot be reabsorbed by the sheet when the pressure is removed.

A typical water removal curve for the press section of a fast running tissue machine will show approximately 94 percent moisture in the sheet going into the couch, 87 percent after the couch, 75 percent after the press, and 60 percent after the pressure roll.

In the press section, water must be removed progressively through the several units. In any given unit, the water squeezed from the sheet must not exceed that amount which can readily flow out of and away from the sheet. If this caution is not observed, the result will be a blown sheet in which the formation is disrupted by the mechanical disturbance of the water leaving the sheet faster than it can be handled by the felts.

The dryer is the final means of water removal. Because of the limitations of pressure as a means of removing water, it is probable that the sheet will never reach this point with much less than 60 percent moisture.

Increasing drying capacity is a matter of supplying more heat to the sheet and removing the evaporated moisture. With conventional dryers, this can be taken care of by adding more dryers after maximum efficiency is achieved with existing units.

With the Yankee dryer, the problem of larger dryers for higher steam pressures must be solved. At the present time, improvement must come by securing maximum efficiency from the dryer. This can be done on a Yankee, as it is on a regular dryer, by blowing hot, dry air onto the sheet to increase the amount of heat supplied to the sheet, and keep it swept clear of the layer of moisture vapor from the water being driven off, and by using exhaust fans to remove as rapidly as possible the moisture vapor coming from the sheet. This insures the least possible resistance to further evaporation of the water remaining in the sheet.

It has been pointed out that the Yankee is the only dryer on which a sheet may be dry creped directly from the machine. The sheet for this type of tissue is dried to a moisture content of 2 to 5 percent for creping. The tonnage of facial, facial-toilet and similar dry creped tissue being made on Yankee machines has increased tremendously in the past decade.

The purpose of the creping operation is to soften and bulk up the tissue. Normally, the sheet in being creped, is shortened as much as 100 percent. That is, two lineal feet of paper on the dryer will produce one foot of paper coming away from the creping doctor.

This crepe is partially pulled out through the receiving rolls, and onto the reel, and is further stretched out in the rewinder, so that the final sheet has a stretch, due to crepe, of 15 to 30 percent.

This creping and stretching breaks up the web structure, thus softening and increasing the absorbency of the sheet. Also the high elasticity thus produced minimizes the effect of the inherent weakness of such a light soft sheet when it is used. At the same time the caliper of the sheet is increased from about .0015″ on the dryer to about .0035″ to .0045″ after rewinding—an increase of 200 to 300 percent.

The result is that, from what amounts to a rather harsh 7.5 to 8.0 lb. MG sheet on the dryer, the creping operation produces a soft, highly absorbent, bulky 9.5 to 10.0 lb. sheet of creped tissue.

Some sheets such as regular toilet, napkin, and towel, are creped wet—at a moisture content of 20 to 30 percent, and final drying is completed after the sheet is creped. This type of crepe gives a harder, stronger sheet, and is often done on machines having conventional dryers, but the Yankee is coming into more common use for the purpose.

Many types of light weight papers are made on the Yankee without creping. To accomplish this the furnish and pH are adjusted, so that by the time the sheet has become dry the sheet to dryer adhesion is rather weak, and the paper may be taken directly from the dryer. Because of the compacting action of the Yankee dryer on the web, this type of sheet has a high strength-to-weight ratio. Also because of the intimate contact of the sheet with the polished dryer face, the side next to the dryer has a glazed surface. Exaggeration of this effect will produce the machine glazed or MG sheet.

Since a soft creped tissue must be highly absorbent, as well as very soft, the stock can be given only a very light beating. A well closed formation on such a thin sheet demands a reasonable proportion of short fibers and fines. As the limited beating as well as the attendant hardening effect precludes the possibility of any appreciable cutting to supply the short fiber, these are best secured by blending various pulps in the furnish.

It is, therefore, customary to use various proportions of hardwood and softwood pulp to secure the proper fiber length proportions with sulfites being favored for higher grade sheets. Groundwood, either bleached or unbleached, is frequently used to supply all or part of the short fiber requirements in the lower cost furnishes.

Soft creped sheets containing peroxide bleached groundwood are of excellent quality—soft, strong and absorbent. Except for a detectable loss in brightness when the proportion runs higher than 12 to 15 percent, the sheet containing bleached groundwood compares favorably in every respect with all the sulfite sheet.

The present tendency to consider any sheet containing groundwood as second grade, closes off an excellent source of short fibered pulp.

To prevent wildness and secure a uniform, evenly formed sheet, it is desirable to brush out the stock as much as possible in the beating operation. For this reason, the pulps used should be, generally speaking, as slow developing as it is possible to secure.

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To sum up, the high drying efficiency and web compacting ability of the Yankee dryer, together with the fact that the ultimate drying capacity is limited by the diameter of the largest dryer procurable, make this type of dryer particularly well adapted to the manufacture of light weight papers and tissue. Because the sheet adheres directly to the dryer face, it is the only type on which it is practical to produce dry creped tissue.

Maintenance— III of Series

Recent Developments In Pump Maintenance

Erik G. Landberg[1]

When applying a centrifugal pump for a given condition or conditions, the following facts are of importance in the order mentioned:

The pump characteristic must be balanced for the duty, to give satisfactory service, i.e. The capacity (GPM) and total head (ft.), of the pump when it is in the correct rotation, and at the proper speed, should not be more or less than required for the job.

Suction line should be direct and as short as possible. Suction line for pumps handling water should slope downward from the pump to the source of supply and not contain any high spots or pockets where air could collect.

For pumps handling paper stock, the importance of agitation cannot be overlooked, as this affects the consistency of the stock the pump has to handle. This is important because if the consistency is variable, the pumping rate will vary.

For pumps working under suction lift or pumps working under positive suction head where handling hot water, the suction conditions must be such that the entrance losses of the pump will not be exceeded and thus cause the pump to work in cavitation.

Installation and Initial Operation

Suction and discharge pipe should be of the size and length which will conduct the proper capacity against the frictional head calculated for this capacity. The pipe friction for a given capacity is higher in a smaller pipe and lower in a larger diameter pipe. For this reason, the selection of pipe size should be determined by the economy of the installation. For temporary installations it may be more economical to select the smaller pipe for discharge, as the first material cost and installation cost may not be offset by the power saving which would be effected

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by the use of the larger pipe. All piping should line up naturally with the suction and discharge flanges and no attempt should be made to pull the piping in line by applying force through the flange bolting.

While the connection of piping and electrical wiring is being made, the coupling between the driver and the pump should be disengaged and the motor should be tried for correct rotation. The coupling halves should be checked for alignment with a taper feeler gauge and a straight scale before the inserts or coupling bolts are in place. The unit should now turn over freely by rotating the coupling by hand.

Before starting the pump, the pump casing should be completely filled with liquid by opening the suction valve and the vent openings on top of the pump casing and left open until liquid comes out through the vents and pump is ready to start. In case the source of supply is below the pump and no foot valve is used in the suction line, all valves with the exception of the suction valve should be closed and an ejector connected to the highest point of the pump casing. In this way, all air is removed from the casing and replaced by the liquid.

When starting a centrifugal pump, it is advantageous to keep the discharge valve fully closed, and after the unit is up to speed, slowly open the discharge valve to the desired capacity. Due to the characteristics of a centrifugal pump, the horsepower requirement is the least at zero capacity and is approximately 45 percent of the horsepower as required at wide open discharge. However, there are exceptions to this ratio of power in centrifugal pumps of higher specific speed. The mixed flow pumps have a fairly flat or constant horsepower curve deflecting to either side at zero capacity. Propeller pumps usually take more horsepower at zero capacity than wide open, and when possible are started with an open discharge valve.

Pumps should never run with closed valves for more than a very short time, for when no liquid passes through the pump, a high percentage of the power input is converted to heat, and if continued, the water may turn to steam or the suction ability of the pump may be exceeded with resulting damage to the pump.

Pulp and Paper Mill Types

Pumps used in paper mills are of varied types and constructions:

In the power house the most vital pumps are the boiler feed pumps, each having from 2 to 8 stages in series and with single side suction impellers usually set in pairs opposed to each other to eliminate undue side or end thrust. The materials of construction depend upon the temperature, pressure and pH value of the water. For general mill water supply and condenser circulation, horizontally split, double

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St. Mary's Kraft Corporation recently expanded the pulp producing capacity of its mill at St. Mary's, Georgia, from 250 to 500 tons per day. The mill converts slash pine into pulp and manufactures kraft paper for shipping sacks, wrapping and other paper products.

Horton steel plate structures were used extensively in this expansion program. We furnished eight digesters, several liquor storage tanks, a 1500 barrel fuel oil tank, a chip tank, a blow tank, a salt cake tank and a lime storage tank.

An extensive installation like this proves that we know how to build the specialized processing equipment and storage tanks used at pulp and paper mills.

You'll need up-to-date equipment to meet today's heavy production demand. When you decide to modernize or expand your facilities, write our nearest office for quotations on heavy steel plate work.

Some of the Horton structures installed in connection with the expansion of the St. Mary's Kraft Corporation mill at St. Mary's, Georgia, are shown on this page. They are (above) liquor storage tanks and (left) a 20 ft. diam. by 20 ft. blow tank.

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suction, enclosed impeller pumps, mostly bronze fitted with cast iron casings are used.

Pumps in the mill are mostly of the end suction, open impeller type handling the stock; and double suction pumps, equipped with flashed wearing rings, used for white water or dilute stock suspensions up to 0.5 percent consistency. The liquor pumps are mostly end suction pumps of the chemical type and of special design. These may be of all iron construction or of special metals to withstand the chemical action.

Stock pumps are of two general types, horizontal and vertical. The horizontal type are well known and have proven their worth over a period of many years. These have the advantage of an open, unobstructed inlet with no shaft running in the stock, and when equipped with horizontal top discharge, can readily pass air without binding. For these reasons, the horizontal pump will handle the highest possible consistency of paper stock. The vertical pump has the advantage of requiring less floor space and of having the motor above the reach of water from the floor.

Maintenance and Adjustment

Running clearances in pumps and when to renew or adjust impeller clearances are as follows:

Double suction pumps and enclosed impeller end suction pumps have in the 6" and smaller sizes an approximate diametric clearance of .010 — .012" between the impeller hub and casing wearing ring when new. The following is suggested as a guide for allowable wear of wearing rings before replacement:

(a) Pumps of 50 feet or less T.D.H. .030 to .035 total diametric clearance.

(b) Pumps of 100 feet or less T.D.H. .025 to .030 total diametric clearance.

(c) Pumps in excess of 100 feet T.D.H. .020 to .025 total diametric clearance.

For pumps 8" and larger having approximately .012" – .015" diametric clearance when new, the following is suggested:

(a) 50 feet or less — .045" to .050" diametric clearance.

(b) 100 feet or less — .035" to .040" diametric clearance.

(c) In excess of 100 feet — .025" to .030" diametric clearance.

Open Impeller Stock Pumps (Horizontal and Vertical)

The clearances between the sideplates and impeller are approximately set to .010" – .015" on the suction side and equal distance on the discharge side. Many times due to unequal clearance, the suction is held to the above mentioned clearance and the clearance on the discharge side permitted to be slightly larger. This setting lends itself to trouble free operation and gives maximum pump efficiency. There are no set rules for minimum clearances, as the important fact is to assemble the pump so no rubbing takes place between the impeller and sideplates. Before renewing or resetting these clearances, quite some wear can take place, and .030" to .040" wear in most cases will not impare the functioning of the pump. The real yardstick for renewing these parts is when the pumping rate falls off sufficiently to impair the stock delivery necessary for efficient mill operation.

These larger clearances, providing the pump functions satisfactorily, are not all loss. The horsepower requirement remains about the same and the pump actually holds the stock in the volute for a longer time. During this cycle the impeller provides some beating or refining action to the stock going through the pump. It is not unusual to furnish open impeller pumps requiring all available power be used to allow large running clearances, and in many cases, when possible to furnish, clearances 1/8" to 3/16".

When handling stock containing cotton-linter or reclaimed paper not fully refined, it is many times necessary to provide a tapering clearance (.010" – .030"), i.e., close clearance at impeller eye and steadily increasing clearance towards the periphery of the impeller to keep the stock from binding and causing excessive power that dangerously overloads the driver.

Enclosed impeller pumps for white water applications must have the wearing rings remachined and relieved from those used on fresh water. This is done by permitting a short cylindrical fit (approximately 3/16" – 1/4") to remain, and the remaining portion of the impeller hub or ring machined on a taper. Another method, not so often used, to keep the impeller from binding in the ring fits is to place the ring on the impeller and drill several 1/4" holes half and half between the impeller hub and the ring, thereby interrupting the cylindrical surfaces and keeping the pumped material from matting and binding.

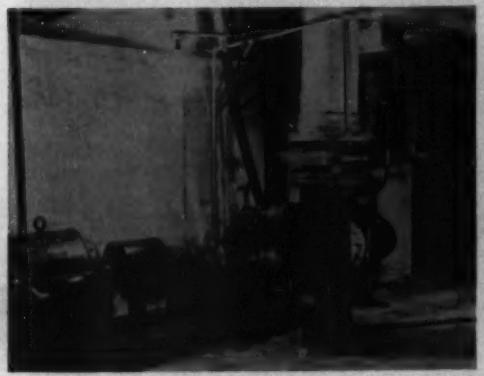
Shaft Breakage in Pumps

When this occurs it is a source of real concern to the maintenance department. However, its occurance is usually at long intervals. When a shaft breaks, it is practically impossible to trace the cause of breakage through the material by test or observation of the broken shaft. The break usually occurs sometime in advance of stopping the pump, and as the driven half of the shaft keeps turning, the break is often buffed or damaged and does not indicate the true cause of the break in the shaft.

The cause of shaft breakage in paper mills is mostly traced to fatigue and corrosion. The latter, of course, is easily observed, while fatigue in many cases is traced to pumps that vibrate. The vibration may be from the pump suction not filling properly and at times being starved of liquid. If uneven wear takes place in the impeller, this also may cause vibration due to unbalance. Many breaks may also be traced to poor alignment of the pump. The driver and couplings should be aligned within a few thousandths of an inch.

In an emergency, to get a shaft for

4" 6 Stage Boiler Feed Pump



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8" Vertical Paper Stock Pump

replacement, the only material immediately available may be "cold rolled steel." The broken shaft may be a high grade "alloy steel" and the maintenance man starts to worry. Pumps with broken shafts have been replaced by shafts made by the master mechanic from cold rolled steel and they have given excellent service. If in doubt and KA-2 (stainless steel) is available, it is preferable to make the shaft of this material as it is tougher and will better withstand the corrosive action encountered in handling paper stock or pulp. If a stainless steel shaft is used, make sure the impeller key is also made of stainless steel.

Bearing Failures

Failure of ball bearings are more frequent in the operation of a paper mill and usually strikes quickly and without much warning. When this occurs, the only replacement to be made is by providing a bearing of the same type and dimension as the bearing that failed.

Contrary to shaft failure, the ball bearing that is removed will tell a straight story of the cause of failure. This can be interpreted and analyzed by a seasoned ball bearing engineer, and for this reason the bearing that fails should be returned to the ball bearing manufacturer or to the manufacturer of the pump involved for analysis. You may say we have done this and did not get a satisfactory answer. This may be true for two reasons:

(1) The bearing was destroyed and beyond examination.

(2) Because after the bearing was removed, proper care was not given to preserve its condition as removed.

In many cases in mills where bearing failures have taken place, when asked to see the bearing, it was usually found to have been thrown on the junk pile where it absorbed dirt and rust. In many cases, the junk man got in ahead of the inspection. Make it a point when an unnatural bearing failure occurs to preserve it as removed to permit an inspection.

The reasons for bearing failures are many and varied. The most common are misalignment, overloading, moisture (corrosion) and lack of lubrication. If the reason for failure is known, it is then possible to trace the cause of the offending machine and permanently correct the condition so that normal life of the bearing may be obtained.

Oil Seals

A well designed ball bearing housing commonly contains one or two stationary oil or grease seals as manufactured by many firms in U.S.A. The material most commonly used is neoprene or leather in the sealing member which the shaft is running against. We have yet to find an oil seal quite satisfactory from the view point of not creating heat when originally started up, and in many cases creating a temperature rise well above the normal temperature range of the ball bearings. However, when you put your hand on the bearing housing, your first thought is that the bearing is hot, although the real cause for the heating comes from the closure or oil seal. This heating may prevail for a short time only, but sometimes it takes days of running before the seal is properly adjusted to the shaft and the running temperature drops to normal.

Packing Sleeves

Replacement of packing box shaft sleeve must be done at regular intervals, and the life of a sleeve depends upon the material used in the sleeve, the packing and the liquid being handled. To prolong the life of the sleeve, it is good practice to pipe the lantern ring to a fresh, cold water supply. This will help to keep abrasive particles out of the stuffing box and at the same time cool and lubricate the packing. In case of a sleeve being grooved, it is often possible to remachine and repolish the sleeve to a slightly smaller size and use it again in place of a new sleeve. The grooving of the sleeve is usually hastened by excessive taking up or tightening of the gland. In many cases it is necessary to have the gland only finger tight and a small amount of leakage should prevail at all times. The only seal capable of stopping all leakage is the so-called "Mechanical Seal" and its use is increasing, although in paper mill pumps the packed type of box is still more prevalent.

Stuffing Boxes and Packing

For general water applications and stock pumps, for low or medium pressures, the packing most commonly used is soft braided asbestos impregnated with graphite. In packing the box it is important that each ring is cut to correct length and when inserted in the box a snug fit should exist between the outside of the box and shaft. In many cases the packing is hammered out too thin and no resistance occurs when inserting the packing ring in the box. Each ring of packing should be thoroughly seated and each succeeding ring should be seated with staggered joints. It is important that the water seal ring is placed in the proper position so that the water connection is aligned up with the center of the water seal ring. The box should then be filled with rings staggered as before and the last ring inserted should be ⅛" inside of the box to permit proper entry of the gland. If the last ring of packing protrudes beyond the end of the box, the gland cannot properly be adjusted for even pressure of the packing and creates a pinching of the packing ring nearest the gland. This condition will create heating at the point farthest from the cooling medium and will cause a premature grooving of the sleeve. When placing preformed or dieformed packing on the shaft, care should be taken so as not to change the diametrical dimensions on the ring, and should be opened with the same motion used when pulling a tension coil spring. Most packing rings can be placed without consideration of direction of rotation with the exception of the spiral wound metal-faced packing (lead, etc.). Packing of this type should be inserted so the rotation of the shaft will slip off each consecutive layer, or spiral. The same care should be exercised when handling packing from a standard coil or spool. The packing should be cut in rings on the proper size arbor with a clean cutting knife instead of straightening the packing and cutting to length on a flat board. Regular woven or braided packings are commonly inserted without consideration of rotation of the pump shaft, but due to the various twists of packing in general, a good habit to develop is to run a finger in both directions in the packing ring, and if one may seem more natural or smoother than the other, to place the packing in that position with the rotation.

In many mills, due to the type of operation, or the kind of liquid handled, together with the conditions of packing and sleeve material, some pumps seem to be more frequent offenders than others in requiring more or less constant repacking. In many cases this is accepted as an necessary evil and the maintenance man prides himself to be able to repack the stuffing box in a matter of a few minutes. However, if proper thought and careful repacking is done, the packing may last longer and much time might actually be saved.

When packing or repacking deep stuffing boxes, it is often advisable to fill the box only ⅔ full with packing, and after running in this packing for several days, add the remaining ⅓ of packing. The reason for this is that the pressure applied to the packing to make it seal around the shaft must come from the gland and it compresses the rings tightest at the gland and less

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and less further away from the gland. Because of this natural tendency, the rings in a deep stuffing box nearest the liquid to be sealed off, do not do any sealing work and permit the liquid to shoot up against the rings nearest the gland which have to be excessively tightened to keep the box from leaking. This condition causes heating and premature wear of the sleeve and packing.

Mechanical seals are not commonly used at present in mills for Paper Stock or Black Liquor. When used in Pulp and Paper Mills, seals of the so called double type are applied using a clear clean liquid as a medium in the sealing chamber.

Performance Characteristics

The characteristic curves of a centrifugal pump are obtained from a shop test using water as the pumping medium. The procedure of such a test is as follows:

Suction is piped to a water supply under the floor and equipped with a mercury-vacuum gauge at the pump suction flange, and in addition a submerged valve is connected in the free end of the suction pipe and used for determining the entrance losses or suction capability of the pump. This valve is left wide open during the regular test run. The discharge is piped from the pump through a Piezometer having various sizes of nozzles, Venturimeter or a Rotameter. A gate valve is placed in the discharge line to control the desired flow and a pressure gauge is located at the pump discharge flange.

The pump is then checked for alignment with the driver and connected through a flexible coupling to a Dynamometer or a calibrated test motor. The pump unit is then primed with an air-ejector and when fully primed, started and brought up to speed. After a suitable time interval, the pump is ready for the taking of test readings.

These readings (suction lift, discharge head and difference in velocity head) are then plotted against the capacity in GPM and when these points are connected, produces the head-capacity curve. The horsepower is read and plotted against the same capacity readings and produces the brake horsepower required by the pump.

With the above information, the efficiency curve can be calculated and plotted. When the head in feet and the BHP is known for a given capacity in GPM, the formula for the efficiency is:

$$\text{Efficiency} \frac{\text{GPM} \times \text{Ft.}}{3960 \times \text{BHP}}$$

Example: At one certain valve setting the instruments are read and the following points taken at 1150 RPM constant speed. Total head equals 75′, capacity 800 GPM requiring 20.0 BHP. By the above formula the efficiency then equals:

$$\text{Efficiency} \frac{800 \times 75}{3960 \times 20} = 76\%$$

Pumps handling stock are then calculated from the test data obtained from the water test, by applying variout multipliers depending upon the consistency and type of stock, to the head and capacity recorded for water.

Referring to the previous example, a stock pump delivering 800 GPM of water against a total head of 75′ when running at 1150 RPM will deliver the following when pumping 4½ percent stock:

(a) Ground wood

$.94 \times 800 = 750$ GPM

$.94 \times 75 = 70$ ft.

Chemical stock (b)

Sulphite, soda

$.92 \times 800 = 735$ GPM

Reclaimed paper stock

rag stock, cotton

$.92 \times 75 = 69$ ft.

The horsepower remains nearly the same whether handling stock or clear water. In this case we find with 20 HP the following stock efficiencies assuming the specific gravity remains at unity:

(a) Ground wood efficiency equals

$$\frac{750 \times 70}{3960 \times 20} = 66\tfrac{2}{3}\%$$

(b) Sulphite, soda, kraft efficiency equals

$$\frac{735 \times 69}{3960 \times 20} = 64\%$$

The entrance losses or suction lift ability of a centrifugal pump are determined through a "suppression test" of the pump by slowly closing the valve in the suction until the maximum suction lift is recorded on the vacuum gauge while pumping the specified capacity against the total dynamic head corresponding to this capacity.

Example: Readings are taken at various capacities of the above mentioned pump, and we assume the following data at one point, namely at 800 GPM and recorded as follows:

Speed: 1150 RPM
Capacity: 800 GPM
Barometer 29.2" equal 33.0′ H^2O
Water temperature 75°F
Absolute Pressure at 75°F equal 875" Hg or 1.0′ H^2O
8" diameter suction at 800 GPM, velocity head equals 0.4′
Suction lift 22.4′ (maximum)
Discharge head 51.7
Difference in gauges 0
Difference in Vel. heads .9′ (8" Suct. 6" dis.)
Total Dynamic Head 75.0′

Entrance loss at 800 GPM equals 33.0 — 1.0 — 22.4 + .4 equals 10′, which means that the minimum theoretical pressure required at the pump suction equals 10′ or 4.3 lbs. absolute when handling liquid at its vapor tension point.

In the application of pumps for clear water or well refined paper stock from ½ percent to 4½ percent inclusive, the friction losses in the general sizes of pipes are fairly well determined and can be used for calculating the pipe friction with fair accuracy. For the heavier consistency of stock, particularly around 5 percent to 7 percent, the figures used and published do not check. From a general observation, it can be said that all friction tables at the present time are on the safe side, and when used for the heavy stocks many times gives calculated friction losses so high as to render the standard stock pumps unusable due to the high estimated friction head. Many cases where this high calculated friction head was arbitrarily reduced to the maximum head that the standard type stock pumps could develop, the standard pump handled the stock satisfactorily at the lower head. Without any question, many Paper and Pulp Mills in this country have developed data and information on pipe friction of certain stocks and pipe sizes, and are using them for selection of pipes and pumps. If this information could be made available and pooled, a great step towards the solution of pipe friction of heavy stock could be accomplished.

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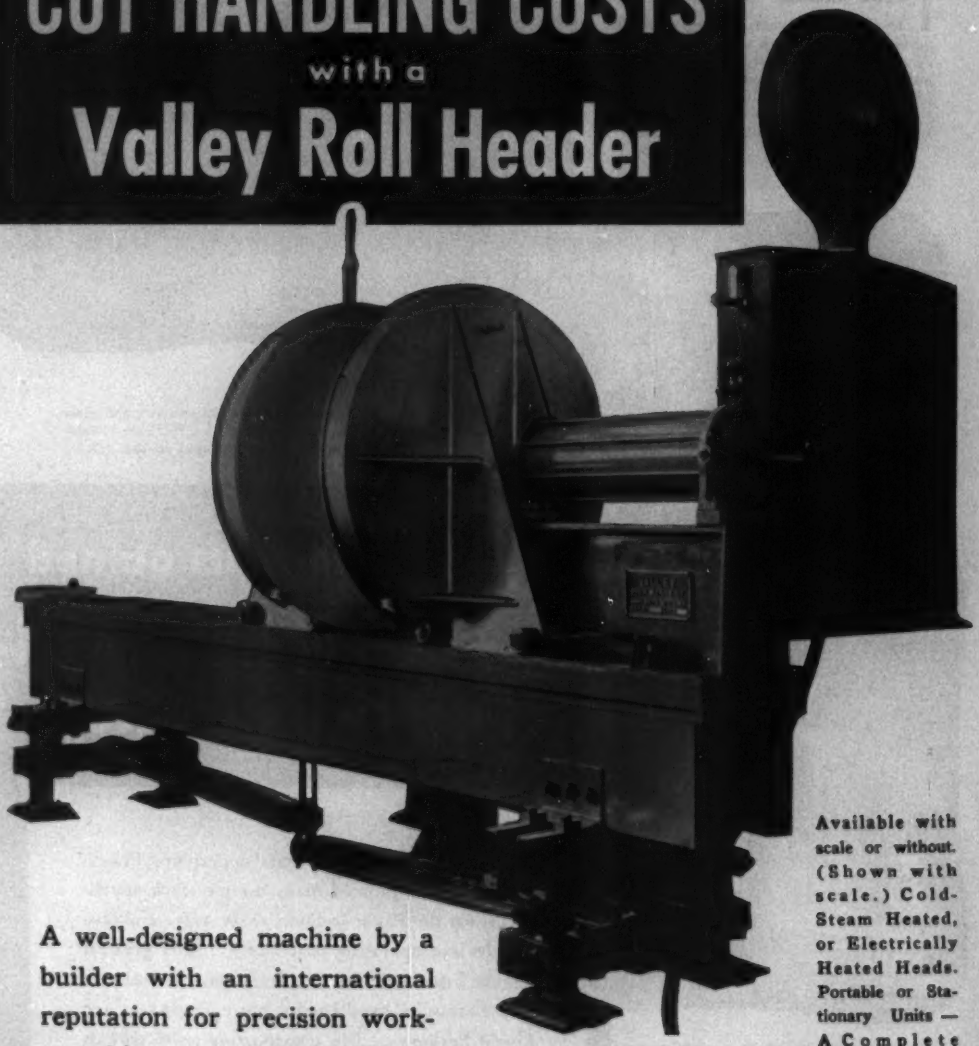

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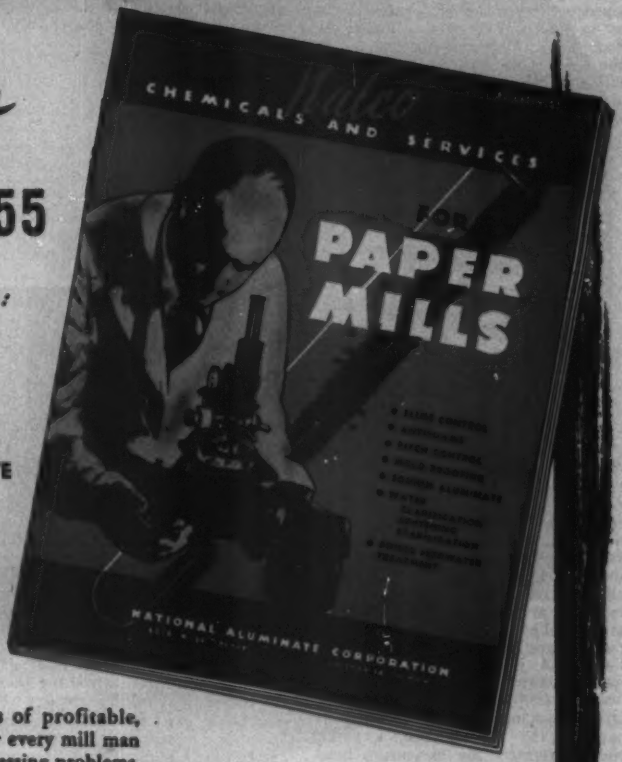

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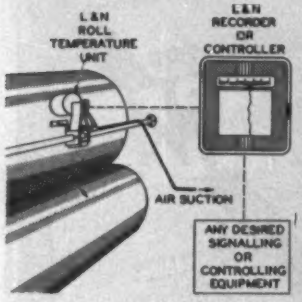
NEW EQUIPMENT

Roll Surface Temperature Unit

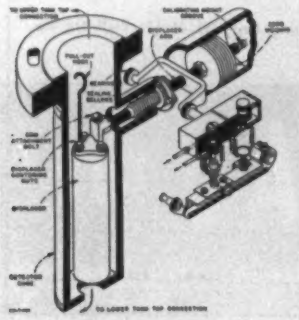
The new Roll Surface Temperature Unit is designed to measure temperature of a moving roll surface without touching the roll. Because of unique construction it cannot scratch, score, or in any way destroy delicate surface films. Temperature detected by the Unit is recorded automatically by either a Micromax or Speedomax instrument supplied as an integral part of the complete equipment. The



recorder can be equipped to operate signals or controls. Applicable to roll diameters down to 9" and to flat surfaces, the new detecting unit operates independent of surface speed, emission characteristics, and finish. It can be mounted at the center of the roll or at any other location, wherever actual temperature measurement is desired. Compound joint with spacing slide makes it easy to position the measuring head concentric with the roll and at proper spacing. Should material adhere to the roll surface, a safety bumper retracts the measuring head.

Liquid Level Detector

A new displacement type detector and transmitter utilizing a bellows seal, providing more precise and sensitive control of liquid levels, has been developed.



Used with a standard receiving-controlling instrument and a diaphragm valve, the detector makes for a smooth, friction-free system for accurate control of liquid level problems in the chemical, petroleum, food, paper and other process industries.

It supplements other methods by serving for those applications which are considered beyond the capabilities of differential type or torque tube displacer type transmitters.

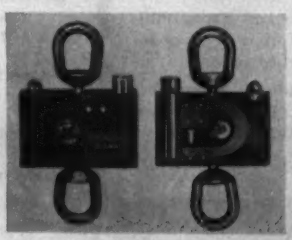
Load Meter

The Load Meter is designed to maintain uniform nip pressures on paper mill dryer loads. The system incorporates standard load cells based on SR-4 bonded resistance wire strain gages which permit direct measurement of roll loads. Essentially, the load measuring unit is a short steel column on which SR-4 resistance wire

strain gages are bonded. Four gages in each load cell are wired together in the form of a Wheatstone bridge which is connected with an indicating, recording and controlling instrument that automatically regulates roll pressure.

Overload Signal

The Overload Warning Signal is designed to protect hoists and cranes by automatically stopping upon an overload. The original version of this



device was Dyna-Switch which served only to cut off the hoist motor. This *companion* unit combines a self-contained warning klaxon light and batteries. Consists of a "U" shaped pressure bar to which is mounted a sensi-

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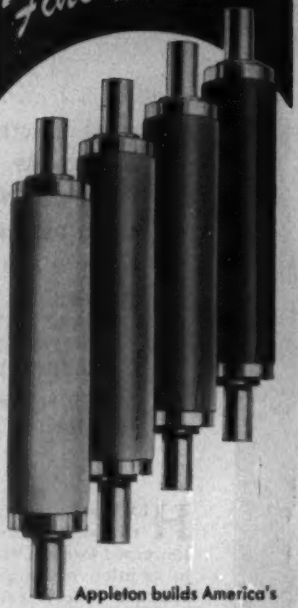

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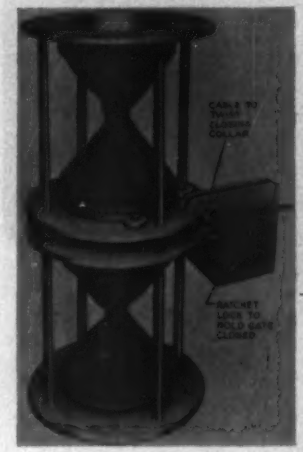
tive micro-switch. Setting is made for any point between 500 and 10,000 lbs. by means of load-setting screw. Should load be exceeded, red warning lamp lights up and klaxon emits warning. Mechanism is enclosed by a strong steel housing, and eye-bolts are prevented from turning by a locking arrangement.

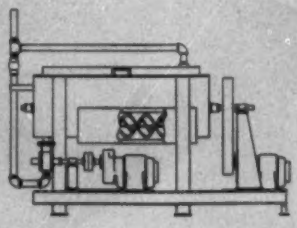
Double-Closure Bin Valve

The Double-Closure Bin Valve consists of two rubber sleeves joined by a rotating steel collar. Dust and drip-tight closure is obtained by pulling on a cable wrapped around the rotating collar, sealing the opening with a twist in each of the rubber sleeves. Valve is self-opening: the elasticity of the rubber sleeves causes them to resume their cylindrical shape immediately when tension on the cable is released. Since the flexible rubber sleeves can wrap themselves easily around lumps caught in the valve during closure, there is no danger of leakage due to variation in the size of material particles, it is said. Valve can be hand controlled locally by mounting a ratchet lock on the valve to hold the cable in the closed position. Remote hand control can be obtained by mounting the ratchet lock at any desired location and running the control cable to it by a simple pulley arrangement. The valve can also be controlled automatically by the use of a small actuating motor.



Horizontal Paste Mixer

The new 60 gallon, stainless steel, heavy-duty paste mixer provides a method of supplying paste of uniform consistency, characteristics and temperature under accurate discharging conditions. The mixer is built with a rectangular mixing tank, having a half round bottom. Tank is jacketed on the round bottom for 36" of its length for steam heating at 125 p.s.i. working pressure. A full-length, stainless-steel ribbon-type spiral agitator, with inner and outer ribbons having opposite thrusts, assures thorough mixing action. The curved cover is hinged for quick and easy access for filling and cleaning purposes. Discharge piping has a swivel joint design, making vat or drum loading fast and simple. Spillage losses are kept to a minimum by the use of two pump "start-stop" and "momentary fill" push button controls. A thermometer located in the discharge line checks temperature of the discharging paste.



NEW LITERATURE

Carbide and Carbon Chemicals Co. "Niacet" Bulletin, "'Niaproof' Aluminum Acetate Powder." Describes the properties of a water soluble basic aluminum acetate powder which is used with wax emulsions to produce water repellant coatings. Instructs on the preparation of typical coating formulae.

Consolidated Water Power & Paper Co. Announces availability of 1950 Index to "Flower Grower."

Diamond Alkali Co. Annual Report —1950. Features "The Story of a Diamond Stock Certificate" which presents simply the significance of such a certificate to its employees, the communities in which the company has plant operations, its customers, the consuming public and its stockholders.

Chamber of Commerce of the U.S. Folder, "Your Shrinking Dollar—and What You Can Do About It." Lists the causes of rising prices, remedies to halt their rise, and what each person can do to prevent inflation.

W. C. Dillon & Co., Inc. Technical Data, "Dillon Dyna-Switch." Highlights automatic switch that stops a hoist or crane upon an overload. Also, "Automatic Overload Signal."

Drycor Felt Co. Newspaper, "Connecticut Products." Introduces a method for mechanically felting nylon to produce a textile similar to conventional woolen felt, but possessing the superior characteristics of nylon.

Eriez Mfg. Co. Bulletin, "The Eriez Magnetic Hump." Technical data on a unit which is designed to remove tramp iron from materials conveyed in pneumatic, gravity flow or liquid lines. Includes diagrams and charts, also construction and application data.

Electric Machinery Mfg. Co. Bulletin, "Polarized Field Frequency Controls for Synchronous Motors." Complete with ratings, weights, dimension drawings, wiring diagrams, layout drawings, and specifications for each type of control covered.

Stephens-Adamson Mfg. Co. Technical data, "'Twistite' Double-Closure Bin Valves."

Superintendent of Documents, Government Printing Office. Weekly Bulletin, "Defense Production Record." Summarizes orders, regulations and recommendations of Industry Advisory Committees and other activities of Government defense production agencies.

Industrial Ovens, Inc. Booklet, "Continuous Automatic Processing Equipment." Presents a clearly written, well illustrated practical exposition of some of the more advanced machine design elements involved in continuous coating equipment for such web materials as textiles, papers, films and foils, and strand materials.

Crane Co. Manual, "Piping Pointers." Illustrates and discusses helpful hints on the application and maintenance of piping equipment. Includes training film. Also, a Crane Valve Selection Guide used in selecting valves for common piping services.

Ultra-Violet Products, Inc. Editorial release, "New Blak-Ray Ultra-Violet Lamp." Introduces improved ultra-violet lamp used for observing fluorescence. Designed for use in laboratory analysis and industrial inspection.

Babcock & Wilcox Tube Co. Handbook, Technical Bulletin 1B "The Properties and Methods of Working Seamless and Welded Tubes and Pipe of the B&W Stainless Croloys," 104 pp. Serves as a guide for engineers, designers and fabricators, in choosing proper material and as a help in planning the conversion of stainless steel tubing into finished products for industry. Includes tables, photographs, detailed diagrams and charts.

Crane Packing Co. Booklet. Describes in detail new high temperature, anti-corrosive Type 9 Mechanical Shaft Seal.

Minneapolis-Honeywell Regulator Co. Catalog 15-15, "Electronik Potentiometers." Technical data, cuts and charts. Supplies specifications on chart and indicating controllers, chart recorders, and various components.

Westinghouse Electric Corp. Booklet DB-4673. Describes co-ordinated protection of motors. Catalog SA-6692. Covers air conditioning equipment used in cooling, heating, dehumidifying, cleaning, filtering, circulating; or ventilating or air handling.

Dodge Mfg. Corp. Bulletin A-470. Covers the Dodge Double Reduction Torque-Arm Speed Reducer series. Bulletin A-602. Gives data relating to the Single Reduction series of its Torque-Arm Reducers. Comprehensive data in tabular form and tables.

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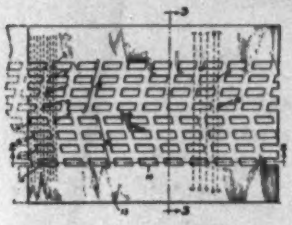
BROWN INSTRUMENTS

Patent Abstracts

● *In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information are included.*

U.S. 2,543,870—Suction Box Cover For Papermaking Machines. Douglas R. Robbins, Middletown, Ohio. Filed December 10, 1947—Issued March 6, 1951.



A suction box cover for paper making machines, comprising a slab arranged to be mounted on a suction box transversely of said machine, said slab being provided with two groups of transverse rows of transverse slots, there being an equal number of rows in each group, the slots in the rows of said two groups being oppositely echeloned and each slot in any row being out of line, longitudinally of said machine, with every other slot.

U.S. 2,543,928—Method of Producing Cellulose Pellets. John J. O'Neill, Jr., Roxana, and Emerald P. Reichardt, Alton, Ill., assignors to Olin Industries, Inc., East Alton, Ill. Filed June 19, 1947—Issued March 6, 1951.

In the manufacture of cellulose pellets, the process which comprises introducing drops of cellulose solution into a coagulating bath through an intermediate layer of liquid inert to said cellulose solution, and maintaining the drops of cellulose solution in said coagulating bath at least until the cellulose in the drops is sufficiently coagulated to retain its shape in subsequent handling.

U.S. 2,544,019 — Manufacture of Plastic-Fiber Composition. Clark C. Heritage, Cloquet, Minn., assignor to Wood Conversion Company, St. Paul, Minn. Filed June 21, 1945 — Issued March 6, 1951.

The method of making moldable preform material containing hot-moldable binder and vegetable fibers, which comprises continuously depositing upon a moving receiving member from a gaseous suspension entities of dry finely divided solid heat-softenable binder and dry substantially individualized vegetable fibers and thereby forming them into a loose unbonded mat having a density not over 4 pounds per cubic foot, said fibers and binder being in proportion to form a cold rigid body after hot-molding at substantially maximum compression, said solid binder being normally non-adhesive and capable of softening to a condition adhesive to the fiber at an elevated temperature to which the fibers may be heated without destruction of their fibrous character, and bonding the fibers of the mat to form a structure having a density ranging from said density of formation to a density up to about 40 pounds per cubic foot by applying heat at a non-fusing temperature for the binder and of intensity to effect surface-tackiness of said binder, whereby to unite the fibers one to another by said individual binder entities and to fix the major portion of all the originally separate entities of the original mat into a resultingly strengthened bonded mat.

U.S. 2,544,020 — Method and Machine For Making and Filling Fluted Containers. Roderick W. Hoag, Melrose, Mass. Filed September 3, 1948 — Issued March 6, 1951.

The method of making filled, fluted containers by a sequence of operations, consisting in advancing a web of single faced, transversely corrugated, flute formed material having the ends of the corrugations along the side margins of the web closed tight; cutting the crown of each corrugation at each end near the margin of the web; longitudinally severing the web to provide two webs; turning both webs to vertical position; filling the flutes of the corrugations of both webs with a commodity; crimp sealing the open ends of the flutes; and transversely severing the web.

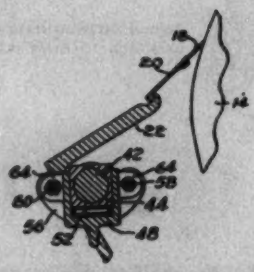
U.S. 2,544,146—Adhesive Composition For Metal Foil To Paper Laminating. Carl R. Erikson, New York, N. Y., assignor to The Arabol Mfg. Co., New York, N. Y. Filed March 29, 1949—Issued March 6, 1951.

An adhesive composition for use in metal foil to paper laminating, consisting of, in percentage by weight: polyvinyl acetate resin dispersion of 55% solids content, 40-75, and a plasticiser; casein, 2-10, with water, 10-35, and 26° Bé. ammonia, 0.2-1.0; a preservative; and 40% formaldehyde 0.025-0.6, with 26° Bé. ammonia 0.5-0.4 and water 1-8.

U.S. 2,544,509—Method of Making Paper Containers Greaseproof. Ralph H. McKee, New York, N. Y. Filed November 17, 1944—Issued March 6, 1951.

In a method of grease-proofing containers to be used for the transport of liquid hydrocarbons, such as gasoline, oils, lubricants and consisting of a single-layer porous paper having a pH of less than 6, the steps of applying to the inside wall of the containers a coating of an aqueous solution of a low viscosity glue and of a quantity of hexamethylene tetramine equal to about 0.2 to 0.5 percent of the dry weight of the glue thereupon directly filling the container with the liquid hydrocarbon of a sufficiently low temperature to thereby congeal the coating and sealing the same whereupon the coating is hardened by the formaldehyde set free from the hexamethylene tetramine by contact with the acid in the container wall and dried by cooperation of its moisture content through the porous container wall.

U.S. 2,544,557—Oscillating Doctors For Paper Machines. William Lyon,



Prestwich, near Manchester, England, assignor to Messrs. Walmsleys (Bury) Ltd., Bury, England. Filed August 27, 1947—Issued March 6, 1951.

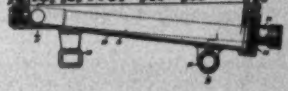
Doctor blade mechanism comprising: a rigid doctor blade support; a pair of axially aligned stub shafts rigidly secured, one at each end of said support; a pair of integral bearing members each rotatably receiving and enclosing one of said stub shafts with an ordinary journal fit, said bearing members having polygonal exterior cross-section, and a pair of supports slidably receiving said bearing members, said supports comprising troughs conforming to the exterior cross-section of said bearing members, the upper sides of said troughs being open to permit removal of the bearing members therefrom.

U.S. 2,544,565—Collapsible Carton. Lawrence H. Phillips, Chattanooga, Tenn., assignor to O. B. Andrews Company, Chattanooga, Tenn. Filed October 28, 1949—Issued March 6, 1951.

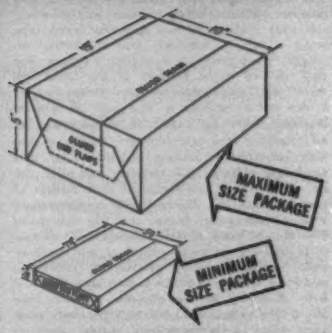
A paperboard carton including a tray and a cover of substantially the same depth hinged along the rear edges thereof, the tray comprising a bottom panel with a front wall, rear wall and end walls substantially perpendicular thereto extending from the edges thereof, the front end edge of each of the end walls adjacent the front wall being offset inwardly of the plane of said front wall a substantial distance and having a projection extending outwardly of the plane of the front wall, the cover comprising a top panel with front and end walls corresponding to said tray walls adapted to extend about the tray walls when the cover is disposed over the tray, the cover wall corresponding to said front wall of the tray having an opening therein at each end thereof adapted to receive said projection upon disposition of the cover over the tray to prevent separation thereof, the offset relation of said end edge affording positive clearance between the outer corner formed by said tray walls and the inner corner defined by said cover walls, whereby jamming of the cover in closing movement over the tray is prevented and positive locking engagement of the projection in the opening is facilitated.

U.S. 2,544,572—Felt Conditioner For Use In Papermaking. Frederick William Vickery, Guildford, England, assignor to Vickerys Limited, London, England. Filed November 16, 1948—Issued March 6, 1951.

For use with a felt conditioner shoe having



If you hand wrap 1,000 or more packages a day, you can't afford to overlook the big savings in materials and manpower that Lynch MORPAC Series "E" Paper Packaging Machine affords you. One operator wraps and seals a neat, trim package saving you up to 85% in labor cost alone. On wrapper material, MORPAC usually saves from 30 to 40%. Lynch MORPAC wraps or bands ream paper, loose leaf fillers, pads & tablets, books and most rectangular objects within its size range. IT WILL REPAY YOUR INVESTMENT IN AS LITTLE AS SIX MONTHS TIME. Write now for your copy of the new brochure outlining specifications and 19 improvements that mean new packaging savings.



This Morpac style end fold uses 25-40% less kraft wrapper than usual hand wrapped style.

No sealing tape is required.

Cold glue seams pressed flat under thermostatically controlled heater plates, give trim, square packages and instant drying.

PAR AIR COMPRESSORS

PAR REFRIGERATION COMPRESSORS

WRAP-O-MATIC CANDY & COOKIE WRAPPING MACHINES

LYNCH CORPORATION
PACKAGING MACHINE DIVISION
TOLEDO, OHIO

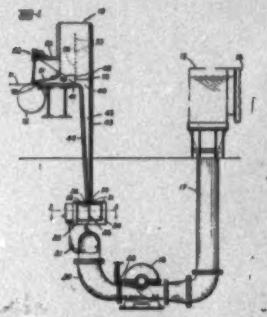
MORPAC ER PACKAGING MACHINES

MORPAC BUTTER & OLEO CARTONING MACHINES

GLASS FORMING MACHINES

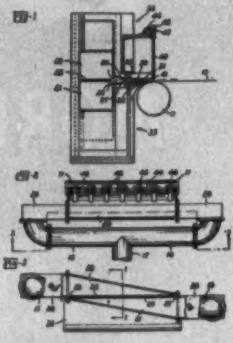
a vacuum chamber containing spaced channels of fluid supply, a cover plate for said shoe formed of hard rigid material, said plate having spaced openings to communicate with said vacuum chamber and spaced orifices to communicate with said fluid supply channels, each of said orifices being elongated in the direction of the width of the plate and each containing a detachably mounted nozzle formed of resilient material whereby to conform to the walls of the orifices and to form a seal between the vacuum-chamber and the channels of fluid supply, each of said nozzles having elongated fluid delivery apertures of predetermined cross-section.

Can. 472,110 — Paper Machinery. Stephen A. Staege, Hamilton, Ohio, U.S.A., assignor to The Black-Clawson Company, Hamilton, Ohio, U.S.A. Filed November 1, 1947—Issued March 13, 1951.



In combination with a Fourdrinier paper machine having an open head box, a stock inlet for supplying paper making stock to said head box under controlled conditions of uniform velocity and distribution of fiber across the width of said machine without creating turbulent and objectionable eddy currents in said head box which comprises a pair of oppositely tapered conduits arranged transversely across said machine and each adapted to be supplied at the larger end thereof with stock under pressure, means forming a slot orifice common to said pair of conduits through which said stock is discharged from said conduits at a predetermined velocity of flow with substantially uniform distribution of fiber across the width of said machine, said orifice being of restricted cross-sectional area relative to said conduits to maintain said predetermined velocity substantially higher than the velocity of flow of said stock in said conduits and substantially uniform across the width of said machine, walls forming an inlet passage for conducting said stock from said orifice to said head box, said walls diverging in the direction of flow from said orifice to said head box at a relatively small angle below a predetermined critical angle to form with said orifice a venturi passage for maintaining said stock between said orifice and said head box in continuous motion towards said head box at a decelerating velocity which is substantially constant across each cross-sectional area of said passage to dissipate, the velocity energy of said stock with minimum turbulence as said stock flows from said orifice to said head box while maintaining substantial uniformity of flow conditions in said stock crosswise of said passage and throughout substantially the entire length thereof, and means forming an open connection of substantially the same cross-sectional area as the larger end of said venturi passage between said passage and said head box to admit stock from said passage to said head box at a velocity substantially lower than said predetermined velocity and with maintained uniformity of flow and fiber distribution across the width of said machine.

Can. 472,111 — Paper Machinery. Stephen A. Staege, Hamilton, Ohio, U.S.A., assignor to The Black-Clawson Company, Hamilton, Ohio, U.S.A. Filed July 22, 1948—Issued March 13, 1951.



An inlet for supplying paper making stock to the traveling forming member of a paper making machine which comprises means forming a slot orifice extending across the width of said machine, a plurality of counterflow conduits connecting directly with said orifice along the entire extent thereof to supply stock to said orifice for discharge therethrough at a predetermined substantially uniform velocity of flow and with substantially uniform distribution of fiber across the width of said machine, means supporting said conduits in closely spaced relation with said machine to position said orifice in close proximity to said forming member, walls forming a totally enclosed inlet passage leading from said orifice to said forming member, one end of said passage being of substantially the same dimensions as said orifice and being directly connected with said orifice to receive the stock therefrom at said predetermined velocity of flow, said passage being of substantially the same lateral extent as said orifice and leading directly to said forming member to conduct the stock from said orifice to said forming member with minimum development of cross currents therein, and the top and bottom walls of said passage being arranged in non-diverging relation in the direction of flow therethrough to maintain the depth of the flow of stock therethrough within the corresponding dimension of said flow as discharged through said orifice and thus to deliver said stock to said forming member in substantially parallel lines of flow at a velocity not less than said predetermined velocity and with substantially maintained uniform fiber distribution across said forming member.

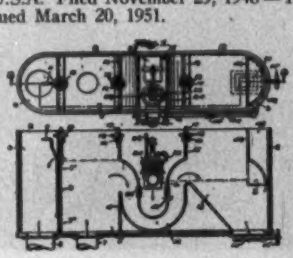
Can. 472,136—Industrial and Paper Makers' Felt and Methods of Producing the Same. Percival T. Gates, Suffield, Connecticut, U.S.A., assignor to Drycor Felt Company, Belleville, New Jersey, U.S.A. Filed June 17, 1948—Issued March 13, 1951.

A paper makers' felt for supporting and draining paper making material, comprising a woven base in which the warp and weft strands have an open weave to provide drainage passages from the front side to the back side, and nap producing layers of fiber material respectively at the front and back sides of said woven base attached thereto by fibers of said layers needled into and through said base from one to the other of said layers, at least one of said layers being composed at least in part of nonfulling pliable synthetic fiber material, the individual fibers of which are disposed partially at the respective sides of said woven base and partially in the drainage passages in a direction substantially perpendicular to said woven base to direct drainage water therethrough.

Can. 472,223—Bark Removers. Walter Brayton Emery, Birmingham, Alabama, U.S.A., and Hugh Shuff, Oneonta, Alabama, U.S.A. Filed November 19, 1946—Issued March 20, 1951.

In a machine of the character described, an annular machine section formed of separable semi-annular portions adapted to be detachably positioned about a standing tree trunk, an annular rotatable machine section formed of separable semi-annular portions supported by the first mentioned machine section and detachably positioned around the tree trunk, driven traction means carried by the first mentioned machine section for engagement with the tree trunk for moving the machine upwardly and downwardly thereof, adjustable cutter means carried by the rotatable machine section for engagement with the tree trunk and having cutting edges extending longitudinally and circumferentially of the tree for peeling the bark therefrom and for trimming off branches, respectively, and driven means for revolving said rotatable section relatively to the first mentioned section and as the machine is moved lengthwise of the tree trunk for simultaneously peeling the bark and trimming the branches of the trunk.

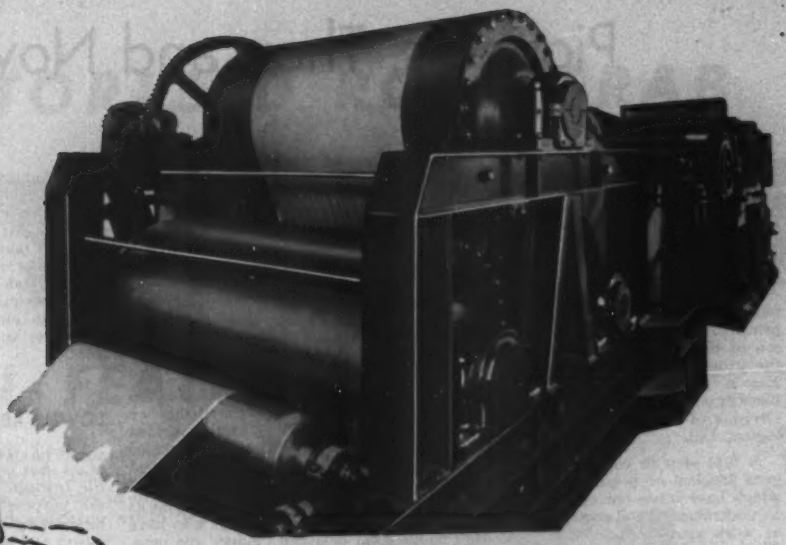
Can. 472,243—Automatic Consistency Regulators for Pulp and Paper Stock. Ernest A. Poirier, Waterville, Maine, U.S.A. Filed November 29, 1948—Issued March 20, 1951.

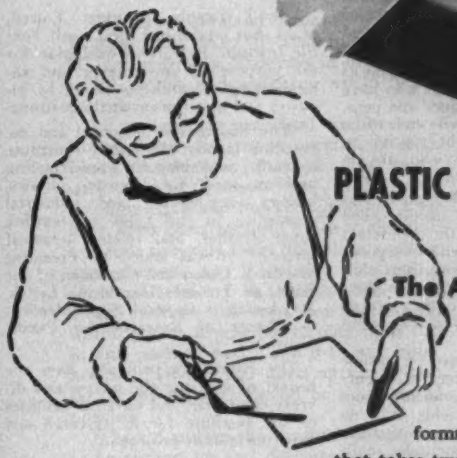


That improvement in methods of regulating the consistency of a stream of paper-making stock, comprising the steps of creating a flow of said stock in a confined stream, supplying stock to said stream at approximately a predetermined volume per given unit of time, interposing a resistance to said flow in a part of said stream so that variations in consistency of the stock will produce corresponding variations in hydrostatic pressure in another portion of said stream, and maintaining a supply of diluting water under a constant head where it is in communication constantly with a part of said stream in which the head varies with changes in consistency, so that diluting water will flow automatically into said stock from said supply whenever its head exceeds that of the stock in the part of said stream in which the head varies with changes in its consistency.

K-C WAREHOUSE IN EAST

NIAGARA FALLS, N. Y. — The Kimberley-Clark Corp., Neenah, Wisc., announced recently that construction is starting immediately on a new warehouse here. The one-story building will provide about 56,000 square feet of floor space for storing raw material and finished printing papers and cellulose products. Completion is scheduled by the end of 1951.





PLASTIC SURGERY for specialty "wrappings"

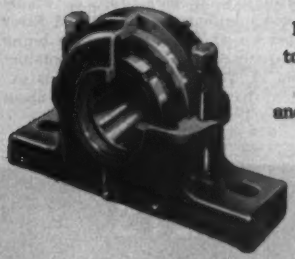
Laminator in

The Albemarle Paper Manufacturing Co. Plant

Here's an asphalt laminating machine that really "performs the wonders of modern surgery" to kraft and asphalt . . . that takes two 72"-wide rolls of kraft paper and laminates them together with an asphalt center.

The Albemarle Paper Manufacturing Company makes waterproof, asphalt laminated and reinforced paper for specialty wrapping purposes. They wanted to increase the machine speed tremendously. A change to SKF pillow blocks and a change of the drive design . . . and increased speed was possible and practical.

Not only as change-overs but as original equipment on all types of paper making machinery, SKF can help *you* to up-up-up production. 7251



8 REASONS WHY SKF IS PREFERRED BY ALL INDUSTRY

integrity
craftsmanship
metallurgy
tolerance control
surface finish
product uniformity
engineering service
field service

SKF

SKF INDUSTRIES, INC., Phila. 32, Pa.
manufacturers of
SKF and HESS-BRIGHT bearings

Pioneers, Then and Now

Americans today must make a greater effort to realize the effects of 'statism' and other 'isms' on our whole way of life, James Q. du Pont, a great-great-grandson of the founder of the Du Pont Co. said in a talk before the Penjerdel section of the American Pulp & Paper Mill Superintendants Assn. Mr Du pont was principal speaker of the Joint Luncheon of the Annual Spring Meeting of the group held at the Hotel Easton, Easton, Pa., May 11 & 12. He is a member of the staff of the Extension Division of the Du Pont Co. at Wilmington, Del.

A first step in coping with the urgent problem of preserving the ideals which have made our country great is to understand the forces that are now at work against those ideals, Mr. du Pont said. It is particularly necessary to consider how and why some well-educated people today are literally "taken in" by innocent-looking organizations whose activities are in reality against the best interests of our country, he added.

In a talk called, "Pioneers, Then and Now," Mr. du Pont explained that, just as the early settlers had all sorts of difficulties with forests and rivers and other formidable obstacles, there are fields for pioneering today. These are in the realm of ideas, and are important if we are to maintain a way of life where the dignity of the individual is respected, where he is permitted to develop intellectually and materially with freedom, and where he may worship at his conscience directs him.

"I am convinced," Mr. du Pont told his audience, "that our biggest problem in the United States today is the new battle for men's minds. . . . This is a battle of individual liberty and responsibility against over-centralized control, and it involves us all whether we like it or not."

On one side of the struggle are the forces which represent the true American tradition. On the other side are those leaders who, in effect, say, "Vote for me, join us and we will take care of you."

"Right now we have a situation that is much more ominous and powerful than any that the early pioneers of our country had to face," he said. "We of today must conquer this or thereby be conquered."

To help save our way of life for the next generation, it is essential that we have an understanding of the various groups of people who are followers of the forces which would kill the good life of America.

Mr. du Pont described one group as the "rabble rousers, the ones who have skillful but poisoned tongues and pens. They are essentially evil and often grow fat and powerful by playing on the miseries of people who are in desperate material straits."

The speaker said another group was made up of "frustrated people. Such people are 'at war' with themselves and therefore at odds with everyone; their husbands, their wives, their children, their community and even their churches. Thus miserable, they are an easy mark to join anything that seems to provide escape."

Still another is composed of "people who are usually well-educated, highly intelligent, and often eminently successful in their specific fields. Why do they join the 'enemy' or allow their names to appear on committees, mailing lists, etc., of such forces?"

Answering this question for his audience, Mr. du Pont said: "Persons in this group, I have found, usually are 'taken in' by the enemy because they have one mental blindspot. This shortcoming is lack of experience with large groups of human beings in any productive effort of significance or duration."

Concluding his address with an appeal to "win back" as many of this last group of men and women as possible, Mr. du Pont said: "Let's face and take the risks of the struggle as did the early pioneers. If we do this, we can keep America free, free for Americans and all mankind, not slaves to any government, including, God bless and save it, our own."

LOWELL RESEARCH FOUNDATION

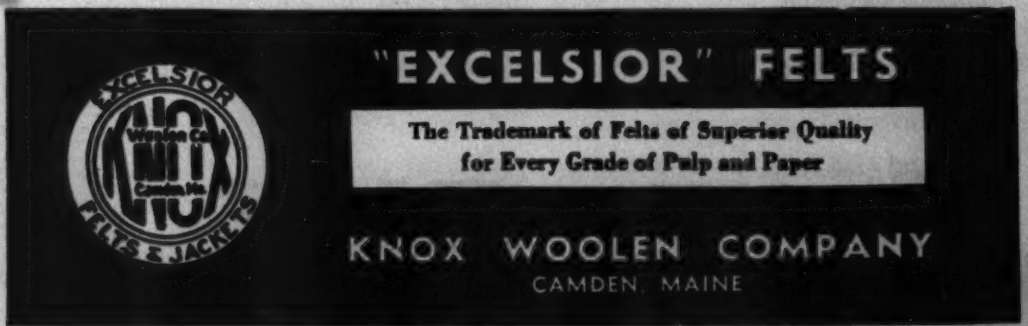
Lowell Textile Institute, Lowell, Mass., has established the Lowell Textile Institute Research Foundation for the purpose of encouraging and administering research sponsored by industry and government at the institute.

"The Foundation personnel and the Institute faculty will jointly constitute a staff available for investigating problems involving chemistry, physics, biology, engineering and industrial economics in the fields of textiles, paper, leather, and related areas of interest," it was stated by President Martin J. Lydon and Chairman of the Board of Trustees Harold W. Leitch. Mr. Leitch is General Superintendent in Charge of Research for Pacific Mills.

The Foundation will also have the benefit of utilizing the unique and diverse equipment and physical facilities of the Institute for its research and experimentation projects.

NEW CONTAINER PLANT

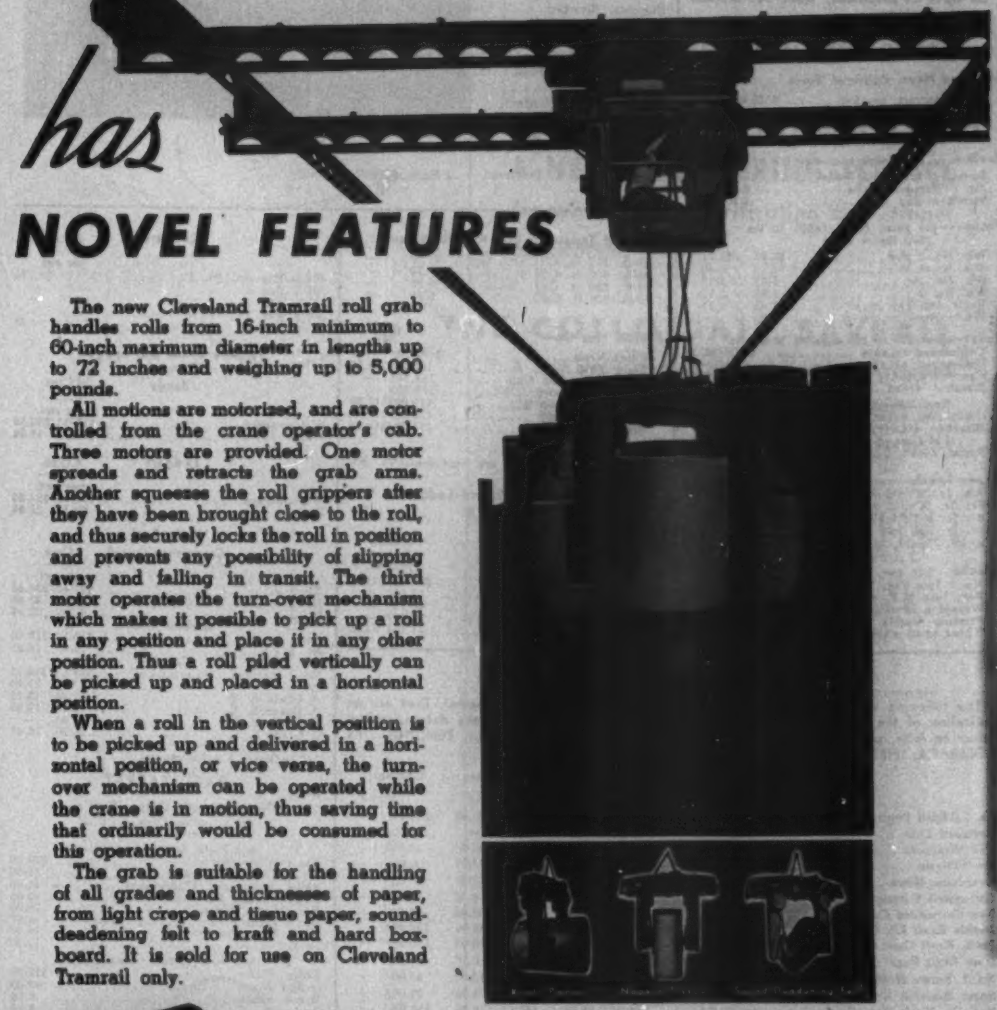
Valley Containers, Inc., a wholly owned subsidiary of the Ottawa River Paper Co. of Toledo, Ohio, have begun construction of a corrugated container plant at Youngstown, Ohio. It is expected that operations will begin about August 1.


"EXCELSIOR" FELTS
The Trademark of Felts of Superior Quality for Every Grade of Pulp and Paper
KNOX WOOLEN COMPANY
CAMDEN, MAINE

MOTORIZED ROLL GRAB

has

NOVEL FEATURES



The new Cleveland Tramrail roll grab handles rolls from 16-inch minimum to 60-inch maximum diameter in lengths up to 72 inches and weighing up to 5,000 pounds.

All motions are motorized, and are controlled from the crane operator's cab. Three motors are provided. One motor spreads and retracts the grab arms. Another squeezes the roll grippers after they have been brought close to the roll, and thus securely locks the roll in position and prevents any possibility of slipping away and falling in transit. The third motor operates the turn-over mechanism which makes it possible to pick up a roll in any position and place it in any other position. Thus a roll piled vertically can be picked up and placed in a horizontal position.

When a roll in the vertical position is to be picked up and delivered in a horizontal position, or vice versa, the turn-over mechanism can be operated while the crane is in motion, thus saving time that ordinarily would be consumed for this operation.

The grab is suitable for the handling of all grades and thicknesses of paper, from light crepe and tissue paper, sound-deadening felt to kraft and hard boxboard. It is sold for use on Cleveland Tramrail only.

GET THIS BOOK!

BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
7106 EAST 287th ST. WICKLIFFE, OHIO

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

PRICES

The prices below reflect market quotations in New York at the mill level on standard grades. Most orders accepted, however, at price prevailing on date of shipment. Does not include spot offerings.

PAPER AND BOARD

Standard News, Delivered Ports

Rolls, contract, per ton	$105.00/110.00
Sheets	118.00/ —

F.o.b. Mills. C.l. Frt. allowed, dock, N. Y.

Kraft— pr cwt., 40# base wgt.

Standard Wrapping Rolls	$7.75/ —
No. 1 Wrapping Rolls	8.25/ 8.50
Standard Bag	7.30/ —

Thews— per ream 24x36, (480) 10 lbs. 2500 lbs or more

Wh. No. 1 Frd.	$1.95 /$2.25
Wh. No. 1 MG †	2.10 / 2.40
Wh. No. 1½	1.85 / 2.15
Wh. No. 2	1.85 / 2.15
Kraft Anti-Tar 20x30	1.85 / 2.15
White Anti-Tar 20x30	1.95 / —

Toilet— per case or 100 rolls—1 M sheets

Unbleached 4½x4½	$8.00/$8.25
Unbleached 4½x5	6.60/ —
Bleached 4½x4½	10.00/12.50
Bleached 4½x5	9.85/ —
Per Case of 50 rolls—2000 sheets	
Unbleached 4½x4½	$8.00/$9.75
Bleached 4½x4½	6.95/ —
Per Case of 100 rolls—1000 sheets	
Facial, 4½x5, 2-ply	$8.95/10.65

Paper Towels— per case of 3750

Wh. Jr. M'tif'd 9½x9½	$5.75
Br. Sr. M'tif'd 9½x12	4.10
Br. Jr. M'tif'd 9½x9½	3.60
Br. Jr. Sgl. fold 9½x10¾	3.65
Bichd. 7½x11, 24/25 rolls	$7.00/7.55

Manila, per cwt.

No. 1 Jute Tag, 100-lb. sheets*	$19.55/21.55
Reg. Jute M.F. 40-lb., sheets*	18.00/20.00
Wrapping Manila	8.75/10.50
Printing Manila	10.50/12.00

* Less usual allowance for rolls.

WORLD WOOD PULP MARKETS

Second Quarter Contract Prices, Per Short Air-Dry Ton

	Varying freight allowances		Atlantic Ports		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	‡$85.00/ 90.00	‡$95.00/100.00			
Sulphate, Bleached	135.00/200.00	190.00/200.00	*$275.00/315.00		*225.00/ —
Sulphate, Unbl. Northn.		145.00/175.00	*250.00/295.00	$200.00/ —	
Sulphate, Unbl. Southn.					
Sulphite, Bichd. (Sftwd.)	135.00/165.00	160.00/175.00	*275.00/290.00	*225.00/ —	*225.00/ —
Sulfite, Bichd. (Hdwd.)	135.00/ —				
Sulphite, Unbichd.		150.00/160.00	*250.00/265.00	*200.00/ —	
Sulphite, Unbl'd (Glassine)		164.00/ —	*252.00/ —		
Soda, Bichd.	140.00/142.50	155.00/160.00			
Siderurus, Pulping News	106.00/ —	106.00/ —			

* On dock. † Delivered. ‡ F.o.b. Shipping Point.

Gummed Tapes—per bdl., 300 bdls. or more

90-lb. 375 ft. GSI	$7.20 / —
60-lb. 600 ft. GSI	7.20 / —
35-lb. 800 ft. GSI	8.28 / —
35-lb. 500 ft. GSO	6.21 / —

Boards, per ton—

Filled News	$107.50/ —
Plain Chip	105.00/107.50
Bichd. Mix. Ld. Chip	147.50/ —
White Pat. coated .020	170.00/ —
Kraft Liners 42 lb.	115.00/117.50
Kraft Corr. .009	122.50/126.00
Binders Boards	137.50/140.00

The following prices are representative distributors' resale prices:

Rag Content Bonds and Ledgers— White, 20 lb.

Bonds	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$70.45/$75.90
100% Rag	62.65/ —
75% Rag	48.15/ —
50% Rag	38.90/ —
25% Rag	31.65/ 33.00

Ledgers	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$72.65/$72.80
100% Rag	63.90/ —
75% Rag	49.40/ —
50% Rag	40.20/ —
25% Rag	33.00/ 34.30

Sulphite Bonds and Ledgers White, 20 lb.

Bonds	4 Ctns.
	per cwt.
Watermarked	$19.90/$20.50
Plain	18.05/ 19.35

Ledgers	4 Ctns.
	per cwt.
Watermarked	$20.30/$21.80
Plain	19.35/ 20.80

White Book

Conversion Coated	Case
	per cwt.
No. 1	$23.40/$24.65
No. 2	21.90/ 23.40
No. 3	20.40/ 22.40
Machine Coated	
No. 1	$18.15/$18.40
No. 2	16.15/ 16.65
Uncoated	
No. 1 Antique (Watermarked)	$18.65/$19.15
Offset	17.40/ 19.90
A Grade E. F.	17.40/ 18.15
A Grade S. C.	18.15/ 18.65
B Grade E. F.	17.65/ —
B Grade S. C.	16.90/ 18.40

‡ Indicates a price change.

WASTE PAPER MARKET

The following quotations were gathered from major dealers in each market. They are an indication of the price range in which volume tonnage was moving on the date specified. Prices to mills, per ton, f.o.b. cars shipping point (includes brokers' fee.) PENDING OPS ROLLBACK, THESE PRICES REPRESENT CEILING RANGE.

	New York	Philadelphia	Boston	Chicago
	May 14	May 7	May 14	May 1
No. 1 Mixed Paper	$20.00/ 21.00	$18.00/ 22.00	$19.00/ 21.00	$20.00/ —
Pasteboard Cuts	23.00/ 25.00	17.00/ 20.00	26.00/ —	25.00/ —
Mill Wrappers	25.00/ 30.00	18.00/ 25.00	22.00/ 30.00	22.00/ —
No. 1 News	23.00/ 24.00	20.00/ 22.00	— /22.00	20.00/ —
Over-issue News	30.00/ 35.00	24.00/ 25.00	22.00/ 24.00	25.00/ —
Corrugated Containers	47.00/ 50.00	41.00/ 46.00	43.00/ 46.50	52.00/ —
New Corrugated Cuts	50.00/ 55.00	48.00/ 55.00	55.00/ 65.00	62.00/ —
Double Kraft Ld. Corr. Cuts	115.00/120.00	105.00/120.00	130.00/140.00	120.00/ —
100% Kraft Corr. Cuts	140.00/155.00	125.00/135.00	130.00/170.00	140.00/ —
Used Kraft Bags	85.00/ 95.00	80.00/ 85.00	85.00/116.50	65.00/ —
No. 1 Brown Kraft Paper	90.00/ 95.00	85.00/ 95.00	90.00/110.00	65.00/ —
Super Resorted Br. Kraft	100.00/105.00	95.00/105.00	100.00/125.00	90.00/ —
New Br. Kraft Env. Cuts	160.00/180.00	160.00/175.00	160.00/180.00	150.00/ —
New Br. Kraft Cuts	150.00/170.00	130.00/140.00	150.00/180.00	140.00/ —
No. 1 Gdwd Shvs.	60.00/ 65.00	50.00/ 65.00	75.00/ 85.00	55.00/ —
White Newsblanks	85.00/ 90.00	80.00/ 90.00	90.00/100.00	80.00/ —
No. 1 Flying Shvs.	80.00/ 85.00	80.00/ 85.00	95.00/110.00	100.00/ —
No. 1 Soft Wht. Shvs.	180.00/190.00	170.00/175.00	175.00/195.00	175.00/ —
Super Soft Wht. Shvs.	190.00/200.00	190.00/200.00	190.00/210.00	185.00/ —
Hd. Wht. Shvs.	195.00/210.00	190.00/215.00	190.00/215.00	180.00/ —
Hd. Wht. Env. Cuts	200.00/235.00	200.00/225.00	200.00/235.00	190.00/ —
New Manila Env. Cuts	140.00/150.00	160.00/165.00	140.00/165.00	115.00/ —
Col. Tab Cards	110.00/120.00	110.00/120.00	95.00/150.00	100.00/ —
Manila Tab Cards	170.00/185.00	165.00/190.00	160.00/200.00	165.00/ —
No. 1 Mixed Ledger	90.00/100.00	90.00/ 95.00	87.00/110.00	100.00/ —
White Ledger	130.00/140.00	125.00/130.00	125.00/140.00	125.00/ —
No. 1 Bank & Mag.†	30.00/ 35.00	30.00/ 40.00	40.00/ 60.00	25.00/ —
No. 1 Rep'd. Hvy. Bonds†	50.00/ 55.00	40.00/ 50.00	60.00/ 75.00	55.00/ —

* Delivered. † Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% groundwood.

RAG MARKET

New Domestic Cotton Cuttings
OPS Ceiling Price, CPR 28
Delivered Mill Basis

Add 7½% Dealer Commission

No. 1 White Shirts	$21.00
No. 1 Unbichd. Muslins	21.00
Bichd. & Unbichd. Underwears	21.00
Bichd. Canton Flannels	21.00
No. 1 Light Silesias	16.00
No. 1 Light Prints	11.50
No. 1 Blue Overalls	14.50
Suntan Khakis	11.50

Add 10% Dealer Commission

Fancy Shirts	$10.00
Indigo Blues	10.00
Mixed Khakis	8.00
Corduroys	8.00
Cottonades	8.00
No. 1 Washables	6.50

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$5.00/$5.50
Cotton Pants & Overalls	4.25/ 5.00
Thirds and Blues, Repacked	3.75/ 4.00
No. 1 Roofing Rags	2.00/ 2.10
No. 2 Roofing Rags	2.15/ 2.50
No. 2 & 4 Roofing Rags	1.90/ 2.30
Roofing Bagging	1.90/ 2.30

New Foreign Cotton Cuttings
(Prices to Mills, F.o.b. Dock, N.Y.)

	Per 100 lbs.
New Dark Cuttings	$4.75/$5.00
New Mixed Cuttings	4.75/ 5.25
Light Silesias	8.00/ 8.50
Light Flannelettes	7.50/ 8.00
New White Cuttings	nominal
New Unbleached Cuttings	nominal
Fancy Shirt Cuttings	6.50/ 7.50

Bulkley, Dunton Pulp Company

Introduces

A NEW ENGINEERING SERVICE

for white water clarification and stream purification.

THE COLLOIDAIR SAVEALL

A new and improved flotation system, developed as a result of extensive paper mill research and based on the experience of over 200 successful operating installations.

THE COLLOIDAIR SAVEALL

. embodies these new features:

- Stability of high efficiency clarification
- Satisfaction of stream purification requirements in both solids and B.O.D. reduction
- Automatic flow control
- Automatic valving
- Automatic chemical and air feed
- Standardized pumps and motors
- Choice of steel or tile vat construction
- Choice of unit pre-fabrication in our plant

For further details about our new Engineering Service and this superior flotation saveall, write today to

Engineering Division
BULKLEY, DUNTON PULP CO., INC.
295 Madison Ave., New York 17, N.Y.

Light Prints	6.50/ 7.50
Blanketable Khaki, No. 1	4.00/ 4.50
Unbl. Khaki, No. 1	5.00/ 5.50

Old Foreign Rags

(Prices to Mills, f.o.b. Dock, N. Y.)

	Per 100 lbs.
No. 1 White Cottons	nominal
No. 2 White Cottons	nominal
No. 3 White Cottons	nominal
No. 4 White Cottons	nominal
Extra Light Prints	5.50/ 6.00
Old Light Prints	4.50/ 5.00
Med. Light Prints	3.75/ 4.00
Dutch Blue Cottons	4.00/ 4.50
Linsey Garments	2.75/ 3.00
Dark Cottons, Egyptian	2.50/ 2.75
Dark Cottons, European	2.75/ 3.00
Old Sheepskins	2.40/ 2.50
New Sheepskins	2.50/ 2.75

Bagging

(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$8.25/$8.50
Domestic Gunny, No. 1	7.75/ 8.00
Heavy Wool Tares	8.00/ 8.25
Foreign Manila Rope	8.00/ 8.25
Domestic Manila Rope	7.50/ 8.50
Jute Strings	7.75/ 8.00
No. 1 Sisal Strings	8.00/ 8.25
Mixed Strings	nominal
Paper Mill Tares	5.35/ 5.75
No. 1 Scrap Burlap	
Foreign	6.50/ 6.75
Domestic	7.00/ 7.50
Austr. Wool Pressbos	7.50/ 8.50
New Burlap Cuttings	7.50/ 8.00

MATERIALS

Aluminum, sulfate:
coml. bags, wks. ..... cwt. 1.65
iron-free c.l. 3.25

Alcohol, ethyl:
tax free, dns. c.l. ..... gal. 1.01 / 1.05½
dnld. East Miss.

Alcohol, methyl:
Synthetic, Zone 1, dns.
c.l. fr. nfld. ..... gal. .44

Casein, acid-prec.:
dom. sh. pt. c.l. ..... lb. .40 / .41½
imp. ex. dock ..... lb. .34½/ .41

Caustic soda:
c.l. wks. solid, 76%, cwt. 3.35
bbl. & grd. 100-lb. drums ... 3.75
liquid 50% tanks 3.55
liquid 70% tanks 2.65

China clay:
dom. air-float. filler, c.l. wks.
ton 10.00
water-washed, lump, filler 11.00
coating ..... 17.00 /20.50
imported, ex whse. ... short ton 15.50 /20.55

Chlorine:
single-unit tanks, works .. cwt. 2.70
multi-unit ..... cwt. 3.50 / 4.40

Formaldehyde:
USP, bbl. dns, c.l. wks. .... lb. .0625/ .0675
l.c.l., E. wks. ..... .0675/ .0725

Fuel oil:
Bunker C, No. 6 Cal. hvy
tanks, refinery ..... bbl. 1.95 / 2.15
light ..... bbl. 2.00 / 2.25

Hydrogen peroxide:
USP, 35% chys. E. of Miss.
lb. .33½/ .36½

Lime:
hydrated, bags, wks. Buffalo
ton 12.50

Rosin:
B gum, drms, c.l. Savan. . cwt. 8.00
G, H, I, K ..... cwt. 8.79 / —
FF, wood, dn. ..... cwt. 7.30 / —

Rosin size:
70%, gum & pale grds, tank
cars, south, sh. pt. .... cwt. 6.80 / 7.80

Salt cake:
dom. bulk, c.l. wks. ..... ton 17.00
wks. frt. all. ..... ton 20.00 /22.00

Soda ash:
light, 58%, bags, wks. 1.30
bulk ..... cwt. 1.30

Sodium silicate 40°:
turbid. c.l. wks. ..... cwt. 1.30 /
l.c.l. wks. ..... 1.60 / 1.85

Sodium peroxide:
dns. c.l. E. of Miss. ..... lb. .21
l.c.l. do. ..... lb. .21½/ .23

Soybean, protein:
chem. ind, wks. c.l. ..... lb. .34 / —
Cinc. and Chic.

Sulfuric acid:
66° Be. chys. cl. wks. .... cwt. 1.75 / —
l.c.l. wks. ..... cwt. 2.05 / 2.35

Sulfur:
crude, c.l. mines, contract,
long ton 21.00 /22.00
f.o.b vessels Gulf ..... 22.50 /22.90
Export, f.o.b. Gulf 22.00

Sulfur dioxide:
liquid, cond. cyl. wks. ..... lb. .09
multi-unit cars ..... lb. .0135

Starches:
pearl corn, bags, c.l. wks. .. cwt. 6.05 / —
white dextrines, c.l. wks. .. cwt. 7.41 / —
potato, Idaho, c.l. wks. .... cwt. 5.80 / —
Potato, Maine, c.l. wks. .... cwt. 5.25 / 5.50
tapioca, canv. dextrines. .. cwt. 8.25 / 8.75
medium grds. Gulf and East
Coast ports ..... 6.75 / 7.50
low, Siam, on dock N. Y. ..... 5.75 / 6.00
nominal

Talc:
domestic, 50-lb. sacks, c.l.
wks. ..... ton 25.00 /30.00

Titanium dioxide:
anastase, c.l. dnld., bags .... lb. .21 / .21½
l.c.l. dnld. ..... lb. .23 / .23½
rutile, c.l. dnld. ..... lb. .23 / .30½
l.c.l. dnld. ..... lb. .24 / .24½

ANSUL SULFUR DIOXIDE CUTS COSTS IN PAPER PRODUCTION

TECHNICAL BULLETINS TELL HOW

ANSUL
LIQUID SULFUR DIOXIDE

. . . is the quality standard of the industry . . . 99.9+% (by weight) pure.

. . . is shipped in 150-lb. cylinders, 2000-lb. ton drums, 30,000-lb. tank trucks, 40,000 and 60,000-lb. tank cars.

. . . is available for immediate shipment, in any desired quantity to any domestic and approved foreign destination.

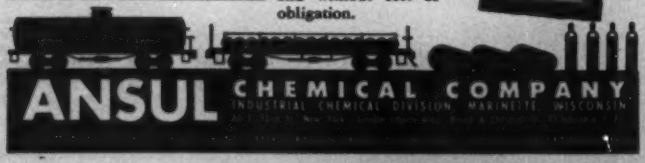
In the paper industry the use of Ansul Sulfur Dioxide . . . *plus the services of the Ansul staff of chemical engineers* . . . has resulted in new economies, better controls and improved quality in a variety of applications.

GROUNDWOOD PULP MANUFACTURERS use Ansul Liquid Sulfur Dioxide as a neutralizer in their peroxide bleaching operation. It is safe and economical to use . . . *and improves brightness, too!*

NEUTRAL SULFITE PULP MANUFACTURERS have avoided costly delays and shutdowns by using Ansul Liquid Sulfur Dioxide to manufacture their own sodium or ammonium sulfite.

And the Ansul "Controlled SO_2 System" eliminates the need for burner gas, decreases costs and provides efficiencies well worth investigating.

Ask for information relating to your operations. Valuable data will be sent to you promptly and Ansul's chemical engineering staff will cooperate with you willingly and without cost or obligation.



ANSUL CHEMICAL COMPANY
INDUSTRIAL CHEMICAL DIVISION MARINETTE WISCONSIN

SPEED UP MACHINE PRODUCTION

with this improved Drive!

Don't let an old, inefficient drive limit your machine production and profits. Replace it now with this new redesigned and improved Manchester Paper Machine Drive.

Here is a rugged drive that can increase your top speeds and take the punishment of continuous service. It will reduce expensive repairs and shutdowns and keep your production running smoothly and efficiently.

Profit-minded mills have found the Manchester Drive an excellent investment. Write for complete information, and a copy of our new illustrated catalog.

THE MANCHESTER MACHINE COMPANY

1908 CENTRAL AVE. • MIDDLETOWN, OHIO

SPECIALISTS IN PAPER MILL MACHINERY AND COMPLETE REPAIR SERVICE

A Few Other Manchester Products

DRUM WINDERS • ADJUSTABLE SHAKE MOTION • POPE TYPE REELS • SIZE PRESSES • RUBBER-COVERED DRILLED SUCTION DRUM ROLLS • DRILLED SUCTION COUCH ROLLS • CYLINDER MOULDS • COMPLETE FOURDRINIER • ROLL GRINDING

ASSOCIATIONS

NORTHERN N. Y. GROUP

The thirteenth annual meeting of the Northern New York Paper Group was held at the Hotel Woodruff, Watertown, N. Y., May 3.

The following officers were elected for the coming year: President, H. McRorie, St. Regis Paper Co., Watertown, N. Y.; vice-president, E. V. Deans, Jr., The Racquette River Paper Co., Potsdam, N. Y.; treasurer, A. W. Horr, vice-president, Brownville Paper Co., Brownville, N. Y.; secretary, M. C. Goodison, 207 Arlington St., Watertown, N. Y. Members of the Executive committee, the elected officers, and V. S. Pitkin, Brownville Board Co., Inc., Brownville, N. Y.; Charles Hirschey, Climax Manufacturing Co., Castorland, N. Y.; J. C. McCormick, Knowlton Brothers, Watertown, N. Y.; H. J. Wenz, Latex Fiber Industries, Beaver Falls, N. Y.; W. F. O'Brien, The J. P. Lewis Co., Beaver Falls, N. Y.; William Martin, Martin Pulp & Paper Co., Norwood, N. Y.

The secretary reported shipping 569 cars containing 30,466,405 pounds, in 1950, an increase of 32 cars and 2,537,681 pounds over 1949.

KALAMAZOO VALLEY MEETING

Kalamazoo Valley Section of TAPPI will have its "Annual Fun Day" on June 7 at the Gull Lake Country Club, rain or shine.

There will be free golf, games, refreshments and prizes. Tee off at 1:00 p.m. Dinner ($3.50 per person) at 7:00 p.m.

Penjerdel Spring Meeting

Approximately 200 men and 60 women, members and wives of the Penjerdel Section of the American Pulp and Paper Mill Section, spent a pleasant two-day period at the annual Spring meeting of the Section at the Hotel Easton, Easton, Pa., on May 11 and 12.

Rainy weather spoiled the golf tournament scheduled for Friday morning, May 11, but the balance of the program was carried through as planned. On Friday afternoon the entire group was conducted on a tour through the Reigel Paper Mill at Milford, N. J. The details of stock preparation, as well as paper machine operation in the manufacture of glassine and greaseproof papers, were demonstrated. The visitors also saw two Yankee machines, operated by Reigel, but owned by Scott Paper Co., making M.G. waxing paper and soft-weve facial tissue, respectively.

At the conclusion of the mill tour, the visitors drove to Reigel Ridge, which is essentially a beautiful country club, located about 3 miles from Milford and provided by Reigel Paper Co. for the use of employers and their families.

Indoor recreational facilities such as bowling, billiards, etc., were available to the visitors before and after a delicious dinner provided by Reigel and served in the large assembly room of the club.

On Saturday morning the entire group gathered in the Hotel Easton main dining room for the joint breakfast which was followed by a highly entertaining program put on by the Industrial Affiliates PPP group (Penjerdel Papermill Peddlers). C. D. Coffman, superintendent, Chesapeake Paperboard Co., won the award for making the closest guess of the number of pennies in a glass coffee maker, which was also added to the prize of about 1700 pennies.

Immediately following the breakfast and entertainment there was a business meeting conducted by Glen T. Renegar, Section chairman.

The presentation of papers began about 10:00 a.m. with Andrew Leuttgen, Glatfelter Paper Co. presiding. The following papers were presented: "Function of Quality Control as an Aid in the Manufacture of Glassine," by Donald Newcombe, technical control director, Reigel Paper Co., and "A Way to Success," by Howard H. Street, superintendent, National Vulcanized Fibre Co.

The joint luncheon was held at 12:30 p.m. in the main ballroom. The luncheon speaker was James Q. DuPont of E. I. du Pont de Nemours Co. whose subject was "Pioneers, Then and Now." Abstract of his speech appears in this issue.

The afternoon presentation of papers began about 2:45 p.m. with Elmer Mitchell, Glassine Paper Co., presiding. The following papers were presented: "Paper Mill Preventive Maintenance," by John Todd, chief inspector, Hartford Insurance Co.; and "Filler Stock Preparation and Cleaning System," by C. D. Coffman, superintendent, Chesapeake Paperboard Corp.

The Industrial Affiliates (PPP) were

Joint Luncheon of Penjerdel Section

What's unusual about U. S. Rubber's new plastic coating?

For one thing, this new coating, called *U. S. Royalguard Protective Coating*, has very high film flexibility and adhesion. It protects:

Against attack by splash, drip, and spray from corrosive chemicals:

- Chemical Processing Equipment
- Tanks
- Pipes
- Tank Cars
- Fittings

Against weathering and rust:

- Structural Steel Parts
- Machinery

U.S. ROYALGUARD plastic coating being applied to yarn-carrying wheels used by textile industry. It is air-drying...no baking or other special treatment is required to produce a tough, flexible, highly corrosion-resistant film.

SAMPLE PLATE coated with Royalguard is bent in vice to demonstrate its high film flexibility and high adhesion. It can be used on steel, aluminum, concrete, hardwood or composition board.

Royalguard is a one-coat system... no primer is required. It will find its broadest use in chemical processing, rayon and cellophane production, photo finishing, pulp and paper manufacturing, sewage disposal, filtering, electroplating and in mining. Write to address below.

PRODUCT OF U.S.RUBBER

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION, ROCKEFELLER CENTER, NEW YORK 20, N. Y.

hosts at a cocktail party in the Gold Room at 6:15 p.m. Saturday evening; John Dieffenderfer, Hercules Powder Co., was master of ceremonies. Dinner was at 7:00 p.m. in the main ballroom, after which the door and golf prizes were presented. The meeting was concluded with dancing from 9:00 p.m. to midnight.

Credit for the success of this meeting should go to the officers and committee chairmen as follows:

Officers: Glen T. Renegar, chairman; Elmer Mitchell, 1st vice-chairman; George Suydam, 2nd vice-chairman; Andrew J. Luettgen, 3rd vice-chairman; Joseph A. Paciello, secretary-treasurer; Howard Street and L. H. Bidwell, Jr., finance committee.

Chairmen of Convention Committees: Elmer Mitchell, Andrew J. Luettgen, program; Joseph Paciello, registration; George Suydam, mill visit; James Trail, L. H. Bidwell, Jr., entertainment-banquet; Howard Street, hospitality; Walter B. Morehouse, P.P.P.'s; Alan Boyd, P.P.P.'s breakfast; Albert Hartley, golf; John C. Dieffenderfer, cocktail hour.

Ladies Committee: Mrs. Glen T. Renegar, Mrs. Elmer Mitchell, Mrs. George Suydam, Mrs. Andrew J. Leuttgen, Mrs. L. H. Bidwell, Jr., Mrs. James Trail, Mrs. Howard Street, Mrs. Alan Boyd, Mrs. Joseph Paciello, Mrs. Albert Hartley.

The 1951 Fall meeting of the Division will be held on September 28-29 at The Pocono Manor, Pocono Manor, Pa.

Initial planning of this meeting presages an outstanding affair from an educational standpoint as well as from the social side. A dinner-dance is being planned for Saturday evening, September 29, that will surpass any previous similar function of the Division.

Work already has been started on the shaping up of the technical program. In this connection every effort will be made to get recognized leaders in production operations and processes to prepare pertinent papers. The task is a big one, since there are so many different types of mills in the Division — board, kraft, book, bond, tissue, toweling, roofing specialties, glassine, building boards, chip, news, and insulating paper, and also pulp mills.

Election of officers for the Division for 1951-1952 will be carried out at this meeting.

AFPI OPEN SOUTHEASTERN DIV.

ATLANTA, Ga.—The American Forest Products Industries will open a Southeastern division office with headquarters in Atlanta. Charles Edward Stout, former Atlanta newspaperman, has been named manager.

Territory administered from the Atlanta office will include Georgia, South Carolina, Florida, North Carolina, Virginia, Kentucky, Tennessee and West Virginia.

Mr. Stout served for two years as chief of the information and education division of the Georgia Forestry Commission.

30 Papers for Superintendents Conventions

Thirty papers on operation, maintenance, technology, forestry and management will be presented at the 32nd annual convention of The American Pulp and Paper Mill Superintendents Assn., to be held on June 24-28 at the Hotel Multnomah, Portland, Ore. They are scheduled for presentation during the last two days of the convention. Titles and authors follow:

The pulpwood Situation in the Pacific Northwest, by Stuart Moir, Forest Counsel for Western Forestry and Conservation Assn.

Pulp and Paper Industry of the U. S. in Today's Economy, by Dr. Louis Stevenson, American Paper and Pulp Assn.

The Wood Pulp Emergency, by Lawson P. Turcotte, President, Puget Sound Pulp & Timber Co.

How We Keep Our Machines in Tip-Top Shape, by R. P. Wollenburg, Chief, Engineering Division, Longview Fibre Co.

Problems Relative to High-Speed Kraft Machines, by John A. McDermott, St. Regis Paper Co.

Problems Relative to High-Speed News Machines, by F. R. Riley, Powell River Co.

Ammonia Base Sulphite Production, by R. Douglas Waddell, Crown Zellerbach Corp.

Ethyl Alcohol—Is It A Solution to the Sulphite Waste Liquor Problem, by Erik Ekholm, Puget Sound Pulp & Timber Co.

Sulphite Pulps for A Specialty Mill, by J. V. Savage, Crown Zellerbach Corp.

Metal Allocation, by Lee E. Hill, Jr., Weyerhaeuser Timber Co., Pulp Division.

How to Maintain a Chemical Recovery Unit, by Russell Graft, Longview Fibre Co.

Caustic Room Operation, by A. C. McCorry, St. Regis Paper Co.

Lime Recovery Equipment, by W. H. Tock, Allis-Chalmers Mfg. Co.

Preliminary Refining of Hot Stock Kraft, by Gordon Petrie, Shartle Bros. Machine Co.

Design of Cylinder Machine Vats, by Philip H. Goldsmith, The Pusey & Jones Corp.

Stock Preparation in a Board Mill, by Lee Eberhardt, The Bauer Brothers Co.

Insulation Board Manufacturing, by Charles L. Walton, Simpson Logging Co., Woodfibre Division.

What We Have Done to Remain Competitive, by Walter F. Wolfe, Mac Sim Bar Paper Co., Division of United Biscuit Co. of America.

Newer Trends in Pulpwood Handling, by Clarence Steigle, Hyster Co.

Recent Advances in Barker Design, by Meder Johnson, James Brinkley Co.

Chip Servicing and Chip Handling, William Farley, Crown Zellerbach Corp.

Screening Book Groundwood from Western Softwoods, by Arthur Palmer, Crown Zellerbach Corp.

Practical Operation of Rotary and Sheet Cutters, by George A. Holt, Rayonier, Inc.

How We Operate Our Supercalenders, by Robert W. Riley, Crown Zellerbach Corp.

Expediting the Packaging and Shipping of Paper, by J. W. Weiblen, Columbia River Paper Mills.

Is the Superintendent A Salesman?, by William Beckett, Beckett Paper Co.

The How and Why of Protective Coatings, by Raymond P. Hill, Chemical-Proof Construction, Inc.

Recent Advances In Non-Corrosive Metals, by James T. Gow, Electric Steel Foundry Co.

Wage Rating of Supervisory Employee, by Robert Boaz, Personnel Development Service.

Events of the afternoon and evening of June 24, the opening day, include registration and the Affiliates Dinner—an annual affair at which one representative of each Industrial Affiliate firm is invited as ugest of the association.

The second day of the meeting will be given over to a woods trip; the third, to mill visits.

Those on the woods trip will witness cat-logging, high-line logging, falling, bucking, and tree-topping operations.

Lunch will be served by the Crown Zellerbach Corp.

On the itinerary for the afternoon will be a trip through stands of western hemlock and Sitka spruce; an operations demonstration of tree thinning, reforestation, fire protection and prevention, and fire organization; a journey through the area of the famous Tillamook Burn (a forest area of 300,000 acres that was burned over during 1933).

The mill visits, scheduled for the second day of the Convention, are arranged as three trips. Trip 1 will take the visitors to the mill of the Crown Zellerbach Corp., Camas, Wash.; Trip 2, to the mills of Weyerhaeuser Timber Co. (Pulp Division) and Longview Fibre Co., Longview, Wash.; and Trip 3, to the mill of Publishers' Paper Co. at Oregon City, Ore., and the mill at Crown Zellerbach Corp., West Linn, Ore.

SUPPLIERS

INTERNATIONAL PRINTING INK, has appointed W. G. (Wally) Sulzer Jr. as Assistant Branch Manager of the IPI Richmond Branch under John Osias.

THE BLACK-CLAWSON EXPORT DEPARTMENT, Middletown, Ohio, has appointed George M. Pennock as director of export Engineering. Mr. Pennock will be assisted in his new position by Gilbert Kohr, a graduate of the Shartle apprentice engineering program. Frank T. Peterson, present Deputy Managing Director of B-C International, Ltd., British subsidiary of the Black-Clawson Co., Hamilton, Ohio, will return to America about June 15, to accept transfer and promotion to a position representing Black-Clawson, Shartle, Dilts in America.

SIGNODE STEEL STRAPPING CO. has elected J. M. Moon, director of sales, to vice-president of the company. As vice-president, Mr. Moon will continue in his present capacity as director of sales. Robert Peterson was elected assistant treaturer of the company.

THIELE KAOLIN CO. has appointed Malcolm S. Burgess director of sales.

CANADIAN INDUSTRIES LTD. will erect a new plant at Copper Cliff, Ont., to produce liquid sulphur dioxide from by-product gases arising from the operation of the oxygen flash smelting process recently developed by the International Nickel Co.

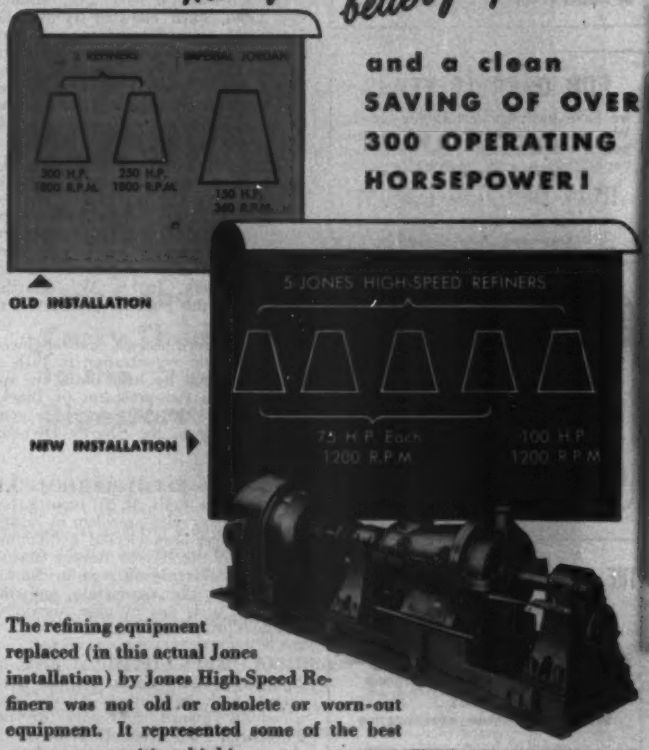
It is expected that when the new plant is in operation it will produce in the neighborhood of 90,000 tons of liquid sulphur dioxide per year. For many years C-I-L has been producing sulphuric acid from Inco's waste gases; this production will also undergo a major expansion this year.

Liquid sulphur dioxide is not made in Canada at the present time although C-I-L produced it in relatively small quantities from 1932 to 1945. Supplies are now obtained from the U.S.A. but consumption is small due to its high cost. The new development, however, will place liquid sulphur dioxide in the category of a tonnage chemical available at a fraction of its present cost.

The potential large consumers are sulphite pulp, newsprint and sulphuric acid manufacturers who now depend mainly upon elemental sulphur. This sulphur, currently in short supply and expected to be increasingly so, is imported from Texas and Louisiana and paid for in United States funds. In 1950, imports were more than 385,000 tons valued at about $7,500,000.

Better Control
More flexibility
better preparation

and a clean
SAVING OF OVER
300 OPERATING
HORSEPOWER!



The refining equipment replaced (in this actual Jones installation) by Jones High-Speed Refiners was not old or obsolete or worn-out equipment. It represented some of the best current competitive thinking.

Yet Jones High-Speed Refiners actually produced improved stock — at a saving of over 300 operating horsepower. They save on maintenance cost, too.

For more information, write for Bulletin EDJ-1011-A.

Jones

E. D. Jones & Sons Company, Pittsfield, Mass.

BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

MORNINGSTAR, NICOL, INC., 630 West 51st street, New York, N. Y., manufacturers of starches, dextrines and adhesives, on May 1 opened the hundredth anniversary of the founding of the Morningstar company. During the next eight months there will be a series of events to celebrate the anniversary. Morningstar, Nicol, Inc., has expanded until it now has operations in 20 states.

CHAS. T. MAIN, INC.
CONSULTING ENGINEERS
Process Studies, Design, Specifications and Engineering Supervision
PULP AND PAPER MILLS
Steam, Hydraulic and Electrical Engineering Reports, Consultation and Valuations
80 Federal Street Boston 10, Mass.

FOR OVER 10 YEARS
we have been converting for others. We can put your facial tissue into boxed goods, toilet rolls or dinner napkins at a very reasonable price.
TISSUE CONVERTING COMPANY
559—1 South Avenue
Garwood, New Jersey

PULP PLANT MODERNIZATION
Without Work Stoppage
Ferguson paper mill specialists can expedite a complete modernization program for you—efficiently—economically and without loss of production.
Preliminary Discussions in Confidence and Without Obligation
THE H. K. FERGUSON COMPANY
ENGINEERS AND BUILDERS
Headquarters: Ferguson Building, Cleveland, Ohio
District Offices: New York, Houston, Chicago, Los Angeles, Cincinnati

THE RUST ENGINEERING COMPANY
Engineers and Constructors
Pittsburgh, Pennsylvania
Complete Service for
PULP AND PAPER MILLS—PLANTS AND FACILITIES
DESIGN, CONSTRUCTION, MODERNIZATION

MISCO
STAINLESS STEEL CASTINGS
FOR ALL EQUIPMENT EXPOSED TO CORROSION BY SULPHITE ACIDS OR OTHER CORROSIVE AGENTS
MICHIGAN STEEL CASTING CO.
DETROIT 7, MICHIGAN

Leo J. Haller has been appointed sales engineer in the Pittsburgh Branch office of Builders Iron Foundry and its associates, Builders-Providence, Inc., Omega Machine Co., Proportioneers, Inc.

BLACK-CLAWSON CO., Hamilton, Ohio, have elevated Homer D. Martindale, president of the company since 1946, to chairman of the board of directors. C. R. Crawford, vice-president and general manager of the Shartle Brothers Machine Co. division of Black-Clawson, was elected president to succeed Mr. Martindale.

Mr. Martindale had been actively engaged in the management first of Shartle Brothers and later of the Black-Clawson Co. for over fifty years. Mr. Martindale began his career in the paper machinery business in 1899 as a general office worker and bookkeeper under Charles W. Shartle, founder of the Shartle Brothers Machine Co.

Mr. Crawford became chief engineer of the Shartle organization in 1918, a position which he held until his appointment to vice-president of Black-Clawson in 1939. He was made general manager of the Shartle Division in 1946.

HOOKER ELECTROCHEMICAL CO., Niagara Falls, N. Y., reports that R. W. Hooker, vice-president in charge of sales, has been elected a director-at-large of the Armed Forces Chemical Assn. Mr. Hooker is a charter member of the association and the Hooker Co. is one of nine sustaining members of the association.

COLUMBIA CHEMICAL DIV. of Pittsburgh Plate Glass Co. has been merged with the Southern Alkali Corp., a wholly owned subsidiary of the Pittsburgh Plate Glass Co. As yet no decision has been made as to whether the organization will be known as Columbia Chemical, Southern Alkali or possibly by a new name.

A. E. STALEY MANUFACTURING CO. has elected Dr. R. E. Greenfield, general superintendent of the company since 1946, vice-president in charge of manufacturing operations.

A Staley employe since 1926, Dr. Greenfield has been a member of the company's board of directors since 1947. The bulk of the company's recently completed $20 million plant modernization program was carried out under his supervision.

LINK-BELT CO. has started construction of a modern engineering and manufacturing plant for the production of elevating, conveying and processing machinery, on a 43-acre site at Colmar, Montgomery County, Pa., on the Doylestown branch of the Reading Railway. The new plant is designed for efficient straight-line manufacture from the receiving department at one end of an 880-ft. long building to the shipping department at the other end. It will contain approximately 300,000 sq. ft. of floor space, including a two-story office building and a modern cafeteria. The layout allows for future expansion to double the initial size. Contract for the design and construction of the new plant has been awarded to The Austin Co.

ALLIS-CHALMERS has organized a new mechanical power department headed by W. A. Yost.

Mr. Yost had been manager of Allis-Chalmers steam turbine department since 1947.

Reporting to Mr. Yost in his new capacity are O. A. Haas, manager of the blower and condenser section; T. J. Hodan, manager of the water conditioning section; C. C. Jordan, manager of the steam turbine section, which includes land and marine steam turbines; and W. J. Rheingans, manager of the hydraulics section.

The general machinery division has appointed J. F. Roberts as director of engineering, and R. C. Allen as consulting engineer.

AMERICAN CYANAMID CO., CALCO CHEMICAL DIV. has named Dr. E. I. Stearns assistant to Dr. R. H. Kienle, director of the Application Research Department. In his new capacity, Dr. Stearns will conduct special research, technical evaluation and field service assignments.

SOCONY-VACUUM OIL CO., INC., has appointed Warren A. Beman, staff member in charge of textile work for the chemical products division, to direct chemical products development for the company.

A primary function of Socony-Vacuum's new activity will be to coordinate the company's development program on all chemical products by working closely with the research and development heads of other leading companies in the paper, textile, plastic, rubber and chemical fields.

ALLIS-CHALMERS MANUFACTURING CO. has elected a new vice-president, Boyd S. Oberlink, who has been serving as assistant to the vice-president in charge of the tractor division. Mr. Oberlink will continue to serve in the tractor division.

MICHIGAN ALKALI DIV., Wyandotte Chemicals Corp., reports that Paul M. Bigley, assistant general sales manager, has been appointed to serve with the ESA.

FINANCIAL

Union Bag & Paper Corp. for the three months ended March 31, 1951, report net sales and net income were the largest for any quarterly period in the company's history.

Net sales for the period amounted to $26,653,544 compared with $17,176,911 in the corresponding period a year ago.

Net income in the first quarter, after provision for taxes, was $3,702,693, equal to $2.45 per share on the outstanding 1,508,598 shares of capital stock. This compares with net income in the first quarter of 1950 of $2,199,395 (revised), or $1.46 per share and net income for the fourth quarter of 1950, after year-end adjustments, of $3,506,907 or $2.33 per share on 1,508,298 shares outstanding.

Hollingsworth & Whitney Co. have declared a dividend of 62½ cents per share of common stock, payable June 12, to stockholders of record at the close of business May 25. The directors have also declared a regular quarterly dividend of $1 per share on the $4 cumulative preferred stock, payable June 30, to stockholders of record June 15.

Mead Corp.'s net sales and profits have been at record levels. Profits for the first twelve weeks ended March 25, 1951, amounted to $1,616,799 which, after preferred dividends on both classes of preferred shares, was equal to $1.45 per share on the 1,061,120 shares then outstanding. Net sales for the twelve weeks of 1951 were $26,018,510, a gain of 33 percent over the same period in 1950.

National Container Corp. has declared the regular quarterly dividend of 20 cents a share payable June 10 to stockholders of record May 20.

Alaska Pine & Cellulose Ltd. has offered a new issue of $15 million first mortgage by a syndicate in Canada. The new issue consists of $1,500,000 3½ percent serial bonds due May 1, 1952-54, and $13,500,000 4½ percent sinking fund bonds due May 1, 1966. The sinking fund bonds are being offered at 100 and accrued interest.

Alaska Pine & Cellulose Ltd. was incorporated in 1925 under the name of British Columbia Pulp & Paper Co., Ltd. Alaska Pine Co. was incorporated in 1939 and, together with associated companies, carries on in B. C. The acquisition by Alaska Pine & Cellulose Co. of shares of Alaska Pine Co. and associated companies will allow integrated operations of the combined enterprises for mutual advantage. After the present financing is completed, Abitibi Power & Paper Co., Ltd., will own 50 percent of the common shares of Alaska Pine & Cellulose.

Hollingsworth & Whitney Co. report consolidated net income of $804,630 for the quarter ended April 1, 1951, after all charges including provision for federal and Canadian taxes on income and federal excess profits tax, based on the present law. After deducting preferred dividends, the balance amounted to $1.70 per share on the 450,000 common shares outstanding. In the quarter ended April 2, 1950, consolidated net income, after taxes on income, was $345,289, equal after preferred dividends to 68 cents per share on the same number of shares then outstanding. The above figures are subject to year-end adjustments after audit.

Powell River Co., Ltd., has declared 75 cents and extra 75 cents dividends, both payable June 15 to stockholders of record May 23.

St. Lawrence Corp. reports that, as of March 22, another 5,318 first preferred shares had been surrendered for exchange into 10,636 common shares. Now outstanding are 121,871 first preferred and 867,653 common shares.

Redlers

PICK UP the CHIPS

Store and Carry Them to the Digestors

GREEN BAY PULP & PAPER CO. GREEN BAY, WIS.

From wood-room at right in picture, a horizontal run of one Redler Conveyor picks up wood chips and elevates them 53 feet, then bends to another horizontal run discharging into two storage bins. S-A Bin Discharge Unit, with revolving arch breaker to keep chips flowing freely, reclaims and feeds to the horizontal run of another Redler beneath bins. Same conveyor inclines upward 58 feet to top of building at left. Here it levels off and conveys horizontally over digestors to which it discharges. Low cost handling is achieved at 39 to 47 tons per hour.

Chip handling is only one of the many jobs S-A Redler Conveyor-Elevators handle in a speedy trouble-free operation—fully protected from weather and spillage. They are compact and, as illustrated by this installation, can be fitted readily into existing plant layouts.

S-A engineers have developed a great variety of bulk materials handling equipment with which they can design unusually efficient systems. If you have an operation where handling costs are high or delays and trouble occur, see what S-A engineers can suggest. Write us.

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50 years experience with bulk handling

STEPHEN S-A ADAMSON MFG. CO.

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Financial News

STOCK REPORT

	Per Share Earnings Calendar Year 1949	Per Share Earnings 12 Mo. to Approx. 3/30/51	Indic Annual Divid. Rate	May 9 Approx. Market Price
PREFERRED STOCKS				
Armstrong Cork Co. $3.75 Cum.	$40.95*	$48.80*a	$3.75	97⅜
Armstrong Cork Co. $4.00 Cum. Conv.	40.95*	48.80*a	4.00	117⅜
Celotex Corp. 5% Cum.	6.80c	14.34b	1.00	16¾
Champion Paper & Fibre $4.50 Cum.	60.09f	103.62a	4.50	103¾
Container Corp. of Amer. 4% Cum.	89.52	153.72a	4.00	101½
Crown-Zellerbach $4.20 Cum.	54.38e	67.00h	4.20	102½
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.93	16.31a	2.50	64¾
Flintkote Co. $4.00 Cum.	62.70	96.36	4.00	101
Robert Gair Co., Inc., 6% Cum.	13.79†	24.54†	1.20	19¾
International Paper Co. $4.00 Cum.	224.55	289.77a	4.00	103¾
Kimberly Clark Corp. 4% Cum.	85.27	114.95h	4.50	109
MacAndrews & Forbes 6% Cum.	61.59	63.54	6.00	134½
Mead Corp. 4½% Cum.	51.37	106.16	4.25	88¼
Mead Corp. 2% Cum. Conv. 2nd	21.35*	45.61*	2.00	62
Pabco Products, Inc., 4% Cum. Conv.	56.46	124.53	4.00	101½
Rayonier, Inc., $2 Cum.	9.54	18.51	2.00	37
St. Regis Paper Co., 4.40% 1st A	30.74	82.64	4.40	91½
Scott Paper Co. $3.40 Cum.	51.15*	64.22*	3.40	92¼
Scott Paper Co. $4.00 Cum.	51.15*	64.22*	4.00	105¾
Sutherland Paper 4½% Conv.	46.92	90.10	4.25	127½
U. S. Gypsum Co., 7% Cum.	283.37	341.57	7.00	176½
United Wallpaper Inc., 4% Cum. Conv.	2.14	17.78	2.00	26½
West Virginia Pulp & Paper 4½% Cum.	81.38c	99.26h	4.50	108¼
COMMON STOCKS				
APW Products Co.	(d)0.81	0.69a	—	6⅞
American Writing Paper Corp.	.84	2.64	0.50	10½
Armstrong Cork Co.	6.57	8.13a	3.75	58¾
Celotex Corp.	1.65c	3.78b	1.00	16¾
Certain-Teed Prods. Corp.	2.84	4.09	1.50	16½
Champion Paper & Fibre	5.15f	9.44a	3.00	56¼
Congoleum Nairn Co.	3.04	3.29a	2.00	25¾
Container Corp. of America	4.23	7.20	2.50	37½
Crown-Zellerbach	6.02e	7.34ha	3.10	55¼
Dixie Cup Co.	7.44	12.18	3.00	65
Eastern Corp.	0.04	4.98	1.00	21¾
Flintkote Co.	4.33	6.19	3.00	29⅝
Robert Gair Co., Inc.	2.11†	3.92†	0.70	14
Great Northern Paper Co.	4.87	4.96	3.00	50
International Paper Co.	7.12	7.92	3.00	50¾
Johns-Manville Corp.	4.83	7.92	3.50	55
Kimberly Clark Corp.	5.29	6.28h	2.40	45¼
MacAndrews & Forbes Co.	3.64	3.78	3.00	38¼
Marathon Corp.	3.29e	5.40h	2.00	47½
Mead Corp.	4.10	6.01	2.20	24¾
National Container Corp.	0.95	2.41a	0.80	13¾
Pabco Products, Inc.	0.85	1.95	0.60	19½
Rayonier, Inc.	4.75	10.41	3.00	47¾
Ruberoid Co.	7.93	9.64a	3.50	54¼
St. Regis Paper Co.	0.91	2.64	0.60	14¼
Scott Paper Co.	3.04	3.80	2.00	48⅜
Sutherland Paper Co.	4.62	9.30	2.75	51¾
Union Bag & Paper Corp.	5.01	8.21	3.00	44¾
United Board & Carton	(d)1.61b	2.71g	1.00	18⅞
U. S. Gypsum Co.	13.51	14.46	10.00	109
United Wallpaper	(d)0.01	0.48	—	3⅜
West Virginia Pulp & Paper	8.58c	13.73h	5.00	83¾

(a) 12 months to 12/31/50
(b) Year ended 11/13/49
(c) Year ended 1/31/50
(d) Deficit
(e) 12 months to 10/31/50
(f) 9 months to 12/31/49
(g) 12 months to 2/3/51
(h) 12 months to 1/31/51
(*) Earnings per combined preferred shares
(†) Includes domestic and Canadian subsidiaries and 60% equity in Southern Paperboard Corp.

Sutherland Paper Co. is negotiating with Lehman Brothers and Harris, Hall & Co., Inc., for sale of $5 million in new bonds and $3,500,000 in new convertible preferred stock.

About $3 million of this money will be applied by the company to retirement of funded indebtedness and the rest for other purposes. Sutherland's common stockholders will be asked at a special meeting soon to authorize the new stock.

Abitibi Power & Paper Co., Ltd., has authorized 25 cents on the new common, payable July 1 to stockholders of record June 1. This equals 75 cents, paid April 1 on the old stock, split three-for-one.

International Paper Co. has declared regular quarterly dividends of $1.00 a share on the cumulative $4.00 preferred stock and 75 cents a share on the common stock, both payable June 25 to stockholders of record May 25th.

AMERICAN PAPER AND PULP ASSOCIATION'S PAPER PRODUCTION RATIO REPORT

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Apr. 7	Apr. 14	Apr. 21	Apr. 28	May 5
1951	102.7	103.1	105.1	101.5r	103.1
	Apr. 8	Apr. 15	Apr. 22	Apr. 29	May 6
1950	94.6	94.4	96.9	95.6	97.5

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	92.6	95.6	96.7	95.4	96.4	97.7	85.3	99.6	96.1	101.0	100.3‡	93.7‡	95.8‡
1951	99.5‡	101.5‡	102.3‡	103.1‡									

‡ Preliminary.
r Revised.

COMPARATIVE YEARLY SUMMARIES

	1944	1945	1946	1947	1948	1949	1950	1951
Year to Date	88.2	88.3	100.2	105.3	100.9	90.3	95.3	101.6
Year Average	88.1	89.4	100.1	104.3	96.2	88.6	95.8‡	

PAPERBOARD OPERATING RATIOS†

	Apr. 7	Apr. 14	Apr. 21	Apr. 28	May 5
1951	106	102	107	105	107
	Apr. 8	Apr. 15	Apr. 22	Apr. 29	May 6
1950	93	88	93	92	92

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1950	88	92	91	92	91	94	82	100	96	100	101	95	94
1951	102	105	104	105									

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: The chart shows the ratio through December 1950 on the basis of 6-day capacity. Beginning with January 1951 the ratio is shown on the new basis of normal 6- and 7-day capacities. Corresponding weekly and monthly ratios for 1950 on the new basis, shown in the tables above, are somewhat lower.

Paperboard operating ratios continue on the basis of a 6-day week.

† For costs of operation based on "inch-hours" reported to the National Paperboard Association.

Cornell Wood Products Co., stockholders approved a management proposal to split the capital stock two-for-one, effective July 31, 1951. To undertake this recapitalization plan, the authorized stock is to be increased to 750,000 shares from 300,000, and the par value changed to $10 per share from the present $1 par. At present the company has 288,486 capital shares outstanding. Stockholders also approved the change of the corporate name to Cornell Paperboard Products Co., as of July 31, 1951.

Price Bros., Ltd., has declared a dividend of 2 percent on preferred stock, payable July 1 to stockholders of record June 19.

International Paper Co. and subsidiaries for the quarters ended March 31, 1951 report net profit amounted to $15,636,484 as compared with $15,364,907 in 1950. The latter figure has been adjusted to reflect the increase in combined U. S. Federal normal and surtax rate to 42 percent which was imposed retroactively by the Revenue Act of 1950.

OBITUARIES

Solomon A. Hermann, 66, plant protection head at the S. D. Warren Co. for 17 years, died in Portland, Maine, after a brief illness.

W. B. Milham, 93, died at Kalamazoo, Mich., on May 11. Fifty-five years ago, Mr. Milham became associated with the then recently formed Bryant Paper Co. He later served as both president of the company and chairman of the board. The mill was taken over by the St. Regis Paper Co. in 1947. At the time of his death, Mr. Milham was chairman of the board of the Illinois Envelope Co. He is survived by three sons, Allan B., Irving A., and Wayne W.; and one daughter, Grace.

NEW PRODUCTS

Cellulon Yarn

A new product is being made by an extrusion process from cellulose by the German firm, Ewald Schoeller & Co., Langerwehe, Dreis Duren, Rhld. Cellulon yarn, which has been used very successfully in Europe for several years, is suitable for filler in rugs, carpets, elastic webs, etc. It is far superior to twisted paper yarn both in tensile strength, elongation and other characteristics. The distinguishing feature of cellulon yarn, as compared with paper yarn, is that its thread cannot be untwisted, which gives it the appearance of textile yarn. It is supplied in natural brown color, white and different colors. Sole importers in the U.S.A. are Industria, Inc., 52 Broadway, New York 4, N. Y.

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Consulting Engineers to
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Since 1929

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CLEARING HOUSE

HELP WANTED

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POSITIONS OPEN

We can place—general supt. pulp mill and Fourdrinier machine paper mill; 2 pulp mill superintendents; asst. supt. board mill; pulpwood procurement man; 2 pulp mill foremen; coating dept. foremen; machine foremen, Cylinder, Yankee and Fourdrinier up to $150 a week.

Mechanical, structural, plant, electrical and designing engineers; chemists, chemical engineers and laboratory men, salary range $3000 to $8000; salesmen for paper and pulp mill equipment; machine tenders and back tenders.

LIST YOUR CONFIDENTIAL APPLICATION WITH US to keep informed of attractive positions open in the pulp and paper mills.

CHARLES P. RAYMOND SERVICE, Inc.
291 Washington St., Boston 8, Mass.
SPECIALISTS IN PLACING PULP AND PAPER MILL EXECUTIVES

M-18

We are converters in the Metropolitan area doing a national business in specialties in seven figures. We need a man who is 40-50 years old, is familiar with the essentials of the paper business, particularly the tissue field, more particularly facial and sanitary tissues, who has a creative mind and imagination, has a smattering of advertising and merchandising, who is aggressive and persistent and who is looking for an opportunity to capitalize on his talents. Start as assistant to president. Salary possibilities 12-15 thousand at end of year or two depending on individual. Our people know of this advertisement. Full particulars with your reply please. Box 251-237 care Paper Trade Journal. J-8

CHIEF ENGINEER. Nationally known company located on eastern seaboard has opening for Chief Engineer familiar with converting operations, folding cartons, developmental work, laminating, plant layout, production flow. Must have graduate degree in either chemical or mechanical engineering, age 35 to 45. Address full details confidentially to Box 51-250 care of Paper Trade Journal. J-8

SALESMAN with experience in the pulp and paper making processes is desired by a manufacturer of special pulp treating machinery to travel in the United States and Canada. Previous sales experience desirable, but not necessary. This is an excellent opportunity for an aggressive, ambitious man of high character and ability. Address Box 51-214 care Paper Trade Journal. M-18

SALARIED POSITIONS $3,500 to $35,000. We offer the original personal employment service (established 41 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars. R. W. BIXBY, INC. —117 Dun Bldg., Buffalo, 2, N. Y. TF

CONSULTING FIRM now organizing in Southeast, needs Engineers and Draftsmen with Kraft pulp and paper experience in structural, mechanical, piping and electrical design and layout. Good chance to get in on start with incentive pay and security. In first letter please include full details on training and experience (salaries in each case), references, draft or military status, etc. Address Box 51-225 care Paper Trade Journal. M-18

SITUATIONS WANTED

PRODUCTION CHIEF

Paper converting, nationally known. Printing, coating, gumming, laminating, finishing operations. Lifetime position for top-flight production executive. Our people know of this ad. Send full details confidentially to President, Box 51-222, care Paper Trade Journal. TF

WANTED — TOP GRADE SALESMANAGER for an eastern chipboard mill. Fully experienced and capable. Furnish details of experience, capabilities and references. Excellent opportunity. Address Box 51-76 care Paper Trade Journal. TF

WORKING SUPERINTENDENT for small, fast growing Eastern mill making lightweight specialties. Cylinder machine experience essential. State qualifications and salary expected. Address Box 51-87 care Paper Trade Journal. TF

GRADUATE MECHANICAL ENGINEER—With sufficient ability and experience in the manufacture of fine papers to be responsible for development program and to design, layout and supervise installation of equipment in midwestern mill. Address Box 51-151 care Paper Trade Journal. My-25

WANTED — EXPERIENCED, COMPETENT PURCHASING AGENT for an eastern chipboard mill. Must be capable and fully experienced. Furnish details of experience, capabilities and references. Excellent opportunity. Address Box 51-153 care Paper Trade Journal. TF

CHEMICAL ENGINEER to fill position of Assistant Quality Control Supervisor in large fiber insulation board manufacturing plant, located in South. All replies confidential. Our personnel know of this ad. Address Box 51-208 care Paper Trade Journal. M-18

SITUATIONS WANTED

EXECUTIVE ACCOUNTANT

Capable, cost minded administrative executive, age 40, available immediately. Fully experienced in multi-plant paperboard, folding carton and printing industry. Box 51-197 Paper Trade Journal. J-8

Master Mechanic with extensive supervising experience is available. Trained as machinist, machine erector and mechanical superintendent. Could also cover practical aspects of plant engineering. Box No. 51-251, care Paper Trade Journal. M-18

PLANT MANAGER—Paper and Board and their conversion; wants challenging opportunity. Highly successful in organization; administration; labor relations and high level production. Presently employed. Address Box 51-63 care Paper Trade Journal. M-25

SUPERINTENDENT — Broad experience as practical paper maker with considerable technical training. Proven ability in Fourdrinier and Yankee Machine mills manufacturing highly specialized grades. Age 43. Address Box 51-216 care Paper Trade Journal. M-18

CHEMIST—B.S. Degree. Extensive experience in coated and fancy paper industry as coating superintendent, superintendent of intaglio, surface and aniline printing. Available in near future as technical or production manager. Address Box 51-224 care Paper Trade Journal. M-18

SITUATIONS WANTED

ATTENTION TOP EXECUTIVES—

I offer the know-how acquired in over 25 years sales and administrative experience in the Paper Industry. Especially qualified assist with Procurement and Customer Relations. Widely known to Paper and Pulp Manufacturers, Converters, Distributors, Publishers and Printers. Member TAPPI & SAPI. Familiar with practically all segments of the industry. Lets discuss without obligation my potential contribution to your organization.—Ed Sullivan, 134 Harmon Drive, Larchmont, N. Y., Tel. 2-5181. M-18

PLANT ENGINEER — Experienced Maintenance and engineering sulphite pulp and paper, desires opportunity with expanding concern. Address Box 51-163 care Paper Trade Journal. TF

POSITION WANTED: Manager or General Superintendent with a progressive fine paper mill. Wide experience fine papers and specialties. Cost-minded, pusher of quality and production. Fine labor relations. Excellent references. Address Box 51-234 care Paper Trade Journal. M-25

CHEMICAL ENGINEER—under 40 with 12 years Kraft Pulping, bleaching and plant renovation and new design experience, desires position in the south with progressive concern having opportunities for advancement. Presently employed. Address Box 51-233 care Paper Trade Journal. M-18

WOOD MANAGER—Very successful 16 year record in woodland's management, procurement, and sawmill management for large operations, desires new challenge to produce results. Forestry graduate, 37. Address Box 51-245 care Paper Trade Journal. M-25

CHEMICAL ENGINEER—Experienced on development of functional papers, plastic coatings, production planning with some executive and sales service background. Desire responsible position in midwest area. Address Box 51-243 care Paper Trade Journal. M-18

FOR SALE

FOR SALE

Motor drives stack directly connected by Waldron flexible coupling with herringbone gear reduction drive & Kohler system electric hookup.
9 roll stack (Molyoke) 80" wide.
1 bottom steel roll 18" dia. with 10" journal.
3 intermediate steel rolls 12" dia. with 6" journals.
3 cotton rolls—14" dia.
1 paper roll—14" dia.
1 steel top roll 10" dia.
Water cooled bearings.
Web frame 17" between guides so intermediate rolls can be removed through sides.
Compound levers and weights.
2 shaft hand rewinding rewinder to take 30" dia. roll. Drive consists of D.C. Diehl 7½ H.P. Motor 230 V with Cutler Hammer, magnetic clutch and Kohler system for variable speed.
Address Box 51-105 care Paper Trade Journal J-8

FOR SALE

1—Westinghouse Steam Turbine, Type C, Rating 125 H.P. with 120-lb. steam, 45 lb. back pressure, 3090 R.P.M. reduced 6 to 1 with gear unit. Recently checked and serviced by Westinghouse Engineering Dept. Contact Whitehouse Paper Co., 3100 N. Second St., Philadelphia 33, Pa. M-18

FOR SALE—65" Seybold Paper Cutter; 36" Slitter & Rewinder, 48" Sheeter with Layboy; 30" Waldron 6-color Wall Paper Printing Press; 29 x 40 Thomson Platen Die Cutter; 6' Brightwood Box Machine. Address Box 51-217 care Paper Trade Journal. TF

FOR SALE

FOR SALE
Press Section

2-pair good heavy Black-Clawson Main Presses complete with bottom frames, swing arm housings, R. C. felt rolls, stretchers, etc. Rub. Cov. Bottom Rolls 24" dia. x 126" face. Brass top rolls 24" dia. x 128" face.

SHARTLE BROS. MACHINE CO.
Middletown, Ohio
M-18

FOR SALE
ATTENTION SULPHATE PULP MILLS

30,000 long tons of lump sulphur 99.5 purity, run of the mine. Can deliver 5,000 tons every 30 days. Address Box #51-247, care Paper Trade Journal. M-18

FOR SALE

FOR SALE

PAPER WINDER — One 104" Warren, #812, equipped with 10 HP Louis-Allis constant speed motor with Pusey Jones slitter assembly complete with 10 top and bottom shear cut slitter assemblies, all shafts, pulleys, belts, starters, switches, necessary for immediate operation included.

MOTOR—U. S. Vari drive, 7½ HP, #56555, magnetic starter, safety switch and fuse boxes.

SCREW HOIST—3-ton cap., 3-ton Yale trolley.

DOLLIES—2 Spider, 2 high roll, one Norman truck, one ¾ paper roll truck.
Address Box 51-353 care Paper Trade Journal. M-18

BOUGHT — SOLD

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FOR SALE

Sandusky Suction Drum Roll—111" perforated face—14½" diameter.

Cone 2½ to 12" Pipe Threading Machine.

3—Packer—6 plates—Witham Vats—new.

12—Sole plates 1 x 12"—various lengths.

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Toilet Winders

2—72" Hudson-Sharp (Surface type winder)
1—84" Giesinger

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1—Sandusky Couch Roll—126" drilled face x 22" diameter.
1—123" 3 bowl revolving reel.

BEARINGS
72—Top and bottom Dryers Bearings 7" diameter x 12" long.

BEATERS
1—Dilts Iron Tub Laboratory Beater. Beater roll 14" diameter x 10½" face.

CALENDER STACKS
1—9 roll 68" Calender Stack.
1—3 roll pressure calender—32" x 108".
1—72" 4 roll calender stack. (Extra heavy duty).
1—80"—3 roll.

CHEST
1—Cast Iron Stock Chest, 25' long x 6' high. (With agitator).

CHIPPER
1—96" Murray 6 knife Chipper—anti-friction bearings.

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
4—Jeffrey Hammermill.

CYLINDER MOLDS
2—30" diameter x 72" face.
1—30" diameter x 79" face.
5—36" diameter x 84" face.
1—36" diameter x 96" face.
1—48" diameter x 72" face.
6—36" diameter x 78" face.
1—30" diameter x 92" face.
1—36" diameter x 72" face.

DRIVES
1—#5½ Reeves Drive.
1—#4 Reeves Drive.
1—Reliance Electric Drive, complete with 5 gear head motors.
3—#3 Reeves Drives (totally enclosed).

V-BELT DRIVE
1—21½" diameter x 7½" face, 5 grooves.
1—14½" diameter x 7½" face, 5 grooves. (With clutch).

DRYERS
1—Complete unit, consisting of 6 dryers, 50" diameter x 30" face, including frames, gears, anti-friction bearings.
7—24" diameter x 48" face.
1—48" diameter x 91" face.
3—50" diameter x 96½" face.
1—36" diameter x 148" face.
1—24" diameter x 150" face.
1—48" diameter x 79" face.
1—48" diameter x 82" face.
2—Dryers 48" diameter x 120" face.
1—24" diameter x 92½" face.
2—38" diameter x 49" face.
1—84" diameter x 48" face.
1—60" diameter x 60" face.
1—48" diameter x 60" face.
2—36" diameter x 66" face.
1—20" diameter x 61" face, complete with frames.
2—36" diameter x 72" face.
8—24" diameter x 60" face.

GUILLOTINE CUTTER
1—60" Cutter.

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1—4 plate Shartle Flat Screen.
7—Packer, 12 plate, roller shoe type.

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Vertical frames for 100 dryers, 48" diameter, with bearings.

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Various cone and smooth pulleys.

PULPERS
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1—Noble & Wood Pulper—Iron Tub.

PUMPS
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.
4—Shartle Brothers circulating pumps, each 4,000 g.p.m.

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1—123"—3 bowl Revolving Reel.

REFINERS
3—#1 Claflin Refiners.

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1—#2 Bird Rotary Screen.
1—#2A Bird Rotary Screen.

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2—Savealls, 36" diameter x 136" face cylinder molds, iron end vats.

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1—60" Moore & White Shower with Layboy and 9 roll backstand.

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Advise us to your requirements.

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Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

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Whiting Corp.

CURL TESTER
Twing-Albert Instrument Co.

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Black Clawson Company
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Jagenberg-Werke Akt. Ges.
Moore & White Co.
Perkins & Son, Inc., B. F.
The Sandy Hill Iron & Brass
Taylor, Stiles & Co. Works
The Smith & Winchester Mfg Co.

CYLINDER MOULDS
Manchester Machine Co.

CYLINDERS
M. W. Jenkins Sons, Inc.

DAMPENERS
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

DECKLE WEBBING
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Wyandotte Chemicals Corp., Michigan Alkali Div.

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Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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General Dyestuff Corp.
Nopco Chemical Co.

DIFFERENTIAL SCALES
Thwing-Albert Instrument Co.

DIGESTERS
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Blaw-Knox Company
Chicago Bridge & Iron Co.
Combustion Engineering-Superheater, Inc.
Lakeswood
Paper & Industrial Appliances
Posey & Jones Corp.

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Monsanto Chemical Company
National Aluminate Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp., Michigan Alkali Div.

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Lodding Engineering Corp.
The Moore & White Co.
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Shartle Brothers Machine Co.

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The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

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J. J. Rose Company
Red-Ray Mfg. Co., Inc.
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Shartle Brothers Machine Co.
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Bird Machine Co.
Black Clawson Company
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Moore & White Co.
Murray, D. J., Mfg. Co.
Posey & Jones Corp.
J. J. Rose Company
Rose Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Bros. Mch. Co.
Stephens-Adamson Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

DRUM WINDERS
Manchester Machine Co.

DRYER DRAINAGE
Stickle Steam Specialties Co.

DRYER ROLL PYROMETER
Thwing-Albert Instrument Co.

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Downingtown Mfg. Co.
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H. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

DUSTING BRUSHES
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Bunge Pulp & Paper Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.

ELECTRIC HYGROMETER
Thwing-Albert Instrument Co.

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Egan, Frank W., & Co.
John Waldron Corp.

EMBOSSING ROLLS
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Gibbs-Brower Company, Inc.
Northern Engraving & Mch. Co.
S. F. Perkins & Son, Inc.
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Wheeler Roll Co.

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General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

ENZYMES
Rohm & Haas Co.
Vanderbilt Co., R. T.

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The Permutit Company
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Shartle Brothers Machine Co.
Waldron Corp., John

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Johnson Corp.
Moore & White Co.
Sandy Hill Iron & Brass Works
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Sheffield Brothers Machine Co

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Williams Apparatus Co.

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Wyandotte Chemicals Corp., Michigan Alkali Div.

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Taylor Instrument Companies
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Valley Iron Works Co.
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Williams Apparatus Co., Inc.

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"the Bauer story on Sulphite"

O Three sets of samples are included in the treatise bearing the above title. The tabs are actual samples of products made in pulp and paper plants.

Seven samples in one set are products resulting from disk-milled knotter and fine screen rejects.

Five samples in another set are swatches made from sulphite pulp refined in disk mills for newsprint.

Eight samples in the third set are swatches of paper made from disk-refined screened sulphite.

Not only are the samples interesting in themselves, but they are illustrative of data on freeness, mullen test, tear test, power consumption, and tonnage capacity. Information on high-yield sulphite pulp is also included.

Now, of course, there's considerable work connected with collating "The Bauer Story on Sulphite." So we don't wish to send copies out to people who are merely curious; but we'll be glad to send a copy, upon request, to anyone who is actively engaged in the production of sulphite pulp or paper. Be sure to ask for a copy if you qualify.

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Shartle Brothers Machine Co.
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Stickle Steam Specialties Co.
Taylor Instrument Companies

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D. J. Murray Mfg. Co.
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Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
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Weber, Herman G.

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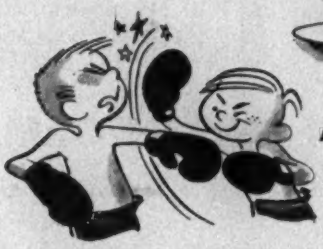
A GOOD PRINTER?

A WATER RESISTER?

AN EASY FOLDER?

A CURL REDUCER?



A SCUFF RESISTER?

S/V CEREMULS help give these characteristics—at low cost

Whatever type of paper you make, you can make it better—and at lower cost—with the help of these famous Socony-Vacuum wax emulsions.

S/V Ceremuls can be applied in the beater or as top sizes. Either way, they greatly improve sizing efficiency, and impart the required characteristics to your finished product. For example . . .

They plasticize starch and clay coatings in coated paper. In board stock, they improve fold. They reduce curl in carbon paper stock . . . make drinking cup stock water-repellent, butcher wrap grease-resistant, boxboard more scuff-proof.

* * *

For better sizing—better paper—use *S/V Ceremuls!* Consult your Socony-Vacuum Representative.

Socony-Vacuum
Process Products

Process Products
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